JULY, 1962 • 35¢

AMERICAN Cinematographer

Magazine Of Motion Picture Photography And Production Techniques

IN THIS ISSUE

COMPOSITE PHOTOGRAPHY PROCESS

ULTRA-WIDE SCREEN SYSTEMS • ANIMATED COMMERCIALS

QUESTIONS & ANSWERS • WHAT'S NEW • BEHIND THE CAMERAS

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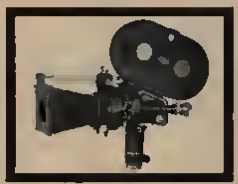

INCOMPARABLE VERSATILITY! The Arriflex 35 is shown as a **hand camera** (left) with 400 foot magazine, matte box, and 16 volt variable-speed DC motor; and as a **studio sound camera,** fully blimped with 400 foot magazine (center), and with 1,000 foot blimp (right)

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July, 1962 Vol. 43, No. 7

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ON THE COVER

THE MITCHELL camera is set low to photograph a scene on location for "Ride The High Country." M-G-M color production co-starring Joel McCrea and Randolph Scott. At far left, soundman holds microphone suspended from fishpole over heads of Ron Starr and Mariette Hartley who play the romantic leads. Lucien Ballard, ASC, directed the photography.

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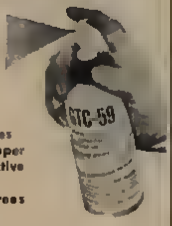

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INDUSTRY NEWS

News briefs of industry activities, products and progress

Color Lab Acquired

A new corporation, Houston-Hale Inc has acquired Houston Color Film Laboratories, Burbank, Calif. motion picture film processor. Houston-Fearless Corp, former owners, will retain a controlling interest in the new company. Effective date of the transfer was May 22 1962.

Albert White, formerly with General Film Laboratory and Technicolor, has been named operations vice-president Hale previously managed Houston Color Film Laboratories which processes all type of 16mm and 35mm motion picture film, both color and black-and-white.

Houston Hale derives from its predecessor companies a number of firsts in processing technique and equipment used by the motion picture industry They were the first to make color film processing equipment available to the entire industry, originators of wide-film processing techniques; first in the development of high-acuity techniques for satellite and aerial reconnaissance; and the world's largest producer of film processing equipment

•

S.O.S. In Expansion

Bringing the company's total floor space to over 25,000 square feet is additional space acquired by S.O.S Photo Cine-Optics, Inc., amounting to 5,000 square feet. New addition is located at 605 West 51st St New York City The three-story building extends a full block in depth from 51st Street to 52nd Street, and will house the company's main offices, showrooms and stockrooms, and permit more of company's old quarters to be given over to its expanding rental and equipment maintenance departments

According to Joseph Tanney, S.O.S President, company will soon make considerable additional equipment available through its Rental-Purchase plan including edge numbering machines, film processors, film striping machines superspray cleaners, sensitometers, background projectors, time lapse units, animation stands and hot press title printers

•

Dates Announced for S. F. Film Festival

Sixty eight countries have been invited to participate in the Sixth Annual San Francisco International Film Festival to be held October 31 through November 13, 1962

The San Francisco Festival is the only U S film event recognized by the International Federation of Film Producers Associations in Geneva Last year's Festival attracted entries from more than 50 nations, the result was this country's outstanding exhibition of film art

A panel of three judges is planned for the 1962 Festival—one from the United States, one from Europe, and one from the Orient

•

New 16mm Eclair

Benjamin Berg, head of Albion Optical Co. Hollywood, who recently returned from European business trip reports a completely new Eclair 16mm camera is on the way which will be adaptable to single-system magnetic sound

•

New ASC Associate

Kemp R Niver, head of Renovare, Hollywood a company specializing in salvaging, re-conditioning, and preservation of vintage motion picture films was elected to Associate membership in the American Society of Cinematographers last month

•

Lin Dunn To Spain

Head of Film Effects of Hollywood Lin Dunn, left for Spain early last month to supervise preliminary work on special effects for Samuel Bronsten's "55 Days At Peking," scheduled to start shooting in Spanish locations June 25

"FOR PRIZE-WINNING QUALITY WE DEPEND ON DU PONT FILMS"

says Dick Dubelman, Lux-Brill Productions, Inc., creator and producer of Remco TV commercials. Dick is shown directing (top, left) with Don Malkames, ASC, who shot the "Johnny Reb" spot that won them a Special Award Trophy for Quality and Excellence at the International Film Festival. This prize-winning team puts top quality into every phase of its work: script, direction, shooting, editing, music, effects. "The fact that we use Du Pont film," Dick says, "means we find it the very highest quality —particularly in separating tones." Du Pont films—and technical data on them—are available from any of the Du Pont Photo Products sales offices shown here.

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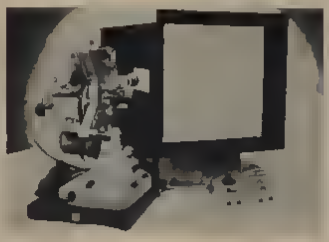
WHAT'S NEW

IN EQUIPMENT, ACCESSORIES, SERVICES

Gyro Head & Tripod

Florman & Babb, Inc., 68 W. 45th St., New York, announces they have been appointed exclusive U S distributors of the Sachter & Wolf line of double gyro heads and tripods. Models are available for 16mm and 35mm cameras Maximum tilt is 180°, panning, 360°. Tilt and Pan action released by separate levers Tripod is sturdy, lightweight List price is $795, including case Illustrated above is Model KA Double Gyro Head designed especially for Arriflex 35mm cameras.



Analysis Projector

A projection system for analysis of 16mm memomotion film for psychological, efficiency, safety, advertising and sales studies is offered by Lafayette Instrument Co., Lafayette, Ind. Known as the Lafayette automatic analysis projection system, it consists of gear driven projector with control panel and front-view screen The control may be operated manually to show single frames at the press of a button, or it may be set automatically to project either one frame per second or ten frames per second Special screen permits viewing during daylight in a normally lighted room. By means of a continuous heat filter, individual frames may be viewed for as long as half an hour without damage to the film. A frame counter keeps a running count on the number of frames shown. The screen may be used with any make 16mm projector

Dealer Franchises Available On McAlister Lighting Equipment

Profitable dealerships for J. G. McAlister and Bardwell-McAlister lighting units and accessories are currently open in various parts of the country, according to CECO Industries and Camera Equipment Co., Inc., sole distributor for this long-established and well-known line.

Covering virtually all motion picture, television and professional lighting requirements, the complete range of products includes new, improved McAlister studio lighting units; Bardwell-McAlister commercial lighting units; Hollywood Scene Dock reflectors and grip equipment, Duro diffusion devices, and McAlister crab dollies Light unit sizes range from 150 watts to 10 000 watts.

Dealership inquiries—as well as requests for descriptive literature and

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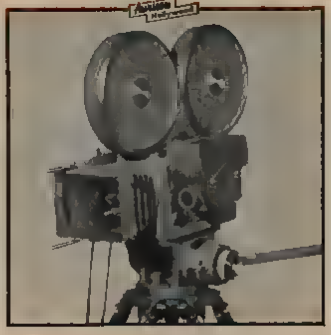
'CINE VOICE II'—16 mm Optical Sound-On Film Camera. ★ 100 ft. film capacity for 2¾ minutes of recording. 6-Volt DC Convertor or 115-Volt AC operation. ★ $967.00 (and up).



"AURICON PRO-600" 16mm Optical Sound-On Film Camera. ★ 600 ft. film capacity for 16½ minutes of recording. ★ $1871.00 (and up) with 30 day money-back guarantee.

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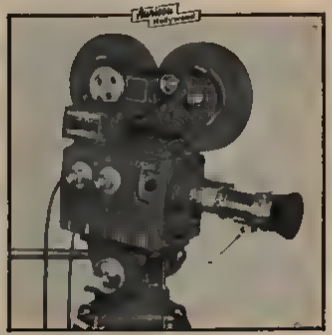

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prices on the complete McAlister line —should be addressed to Mr. Burton Grodin, Camera Equipment Co., Inc., 315 West 43rd Street, New York 36 N.Y.

Filmline Spray Processor

A new combination 16/35mm negative positive spray processor has been announced by Filmline Corp., Milford, Conn. Designated Model S 60 this new combination processor develops negative film at 35 feet per minute and positive film at 60 feet per minute.

Featuring a friction drive and Filmline's exclusive film transport system, it is guaranteed not to break or scratch film. Absolute control is maintained in each film chamber to insure sensitometric quality control and consistent development. The lower film assemblies are adjustable and remain captive in the position placed. The position of the lower assemblies can be easily monitored and adjusted by indicator rods at the top of each chamber.

Additional features of the S-60 are: film chamber doors are completely removable for easy access to entire chamber; processing section is stainless steel; impingement dry box; precision temperature controls with indicating pilot lights for cooling and heating; 316 stainless steel pumps for developing and hypo solution; water temperature regulator; dual air squeegee; feed-in take-up elevator for continuous operation; replenishment flow meters; manual and automatic brake for film supply; variable speed drive; automatic electric torque motor takeup; precision thermometer and footage counter.

EdnaLite Speed Reduction Filter

EdnaLite Optical Co., Peekskill, N.Y., announces the availability of a new filter which reduces the speed of Kodachrome II so that the new film film can be used in cameras lacking ASA speeds of 22 or 16.

The EdnaLite 2.5X Neutral Density Speed Reduction Filter reduces rated film by 2½ times. It reduces Kodachrome II Daylight speed from 25ASA to 10ASA; Kodachrome II Indoor Type A speed from 40ASA to 16ASA.

The new filter now is available through EdnaLite distributors in the United States and Canada.

Film Production Service

Samuelson Film Service, Ltd., 25-29 The Burroughs, London, N.W.4, offers complete film facility service in Europe, and are on call 24 hours a day, 7 days a week.

The company's rental department has over 40 camera outfits available both 35mm & 16mm, including Arriflex, Auricon, B&H, Eclair and Mitchell. Other rental items include an extensive range of individual lenses (wide angle, telephoto, pack-shot and zoom) in most mountings; blimps, crab dollies, geared heads, location sound recorders, camera cars and editing equipment.

The company will supply technicians if necessary, and carry out assignments on behalf of overseas producers on all types of productions ranging from features to television insert or news items.

New Burke & James Catalog

Containing 148 pages, 8½"x11" in size, Burke & James' 65th Annual Catalog illustrates and describes thousands of photographic items and equipment used in still and motion picture photography. Copies are free on request.

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Q & A

Technical Questions and Answers

Q.—*We are doing a small commercial production in 35mm for which the print requirements will be small. We therefore feel that instead of re recording the sound from original magnetic to optical tracks we would like to use the method that we understand is often used in the production of small quantity 16mm prints.*

If this can be done with 35mm, would we have to furnish a magnetic tape that runs at 90 feet per minute (fpm) or would one recorded at 36 fpm do?

Also, to produce dissolves in 35mm, is it necessary to A&B roll the negative as with 16mm, or can the lab make the dissolves with straight edited negative?

To produce 35mm prints that show no splice lines on the screen, should the 35mm original negative be spliced on or off the frame line—C M M., Houston, Texas.

A.—Regarding your sound transfer problem, you are probably referring to 35mm electro printing. This is not a normal means of transferring sound to 35mm positive film. However, it could be done by any of the 35mm sound recording companies, for which the cost would probably run between 2¢ and 2½¢ per 35mm foot.

It would be possible to use 16mm magnetic film recorded at 36 fpm in effecting transfer to 35mm positive at 90 fpm. If your print requirements are fairly large, it would be just as economical to transfer direct to a 35mm optical track.

As to your questions about dissolves: dissolves in 35mm films are normally done by the 35mm fine grain master positive and optical dupe method by any laboratory offering optical printing. Such optical dupes are then cut in with the original negative and, of course, then only a single roll of 35mm film is required for printing. There are a few labs that can print 35mm A&B rolls to incorporate dissolves.

Answering your splicing problem: 35mm original negative, with its wide frame lines and Academy aperture incorporates the entire overlap of the splice within the frame line and, as a result, no splice line will appear from straight frame line splices on 35mm film. To eliminate the splice line in 16mm prints follow the A&B method of cutting the film. For explicit instructions on A&B cutting, consult your film processing laboratory.

Q.—*I am planning to make a documentary-travel film for a European television station. It is my first attempt at such a project. The plan calls for furnishing the station with film as follows*

Continued on Page 402

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QUESTIONS & ANSWERS

Continued from Page 400

1—30 minutes or 1100 feet of color film with magnetic stripe sound.

2—Same as 1 but with optical sound track

Can you give me some idea as to what I should charge for these films? R R R, Artesia, Calif.

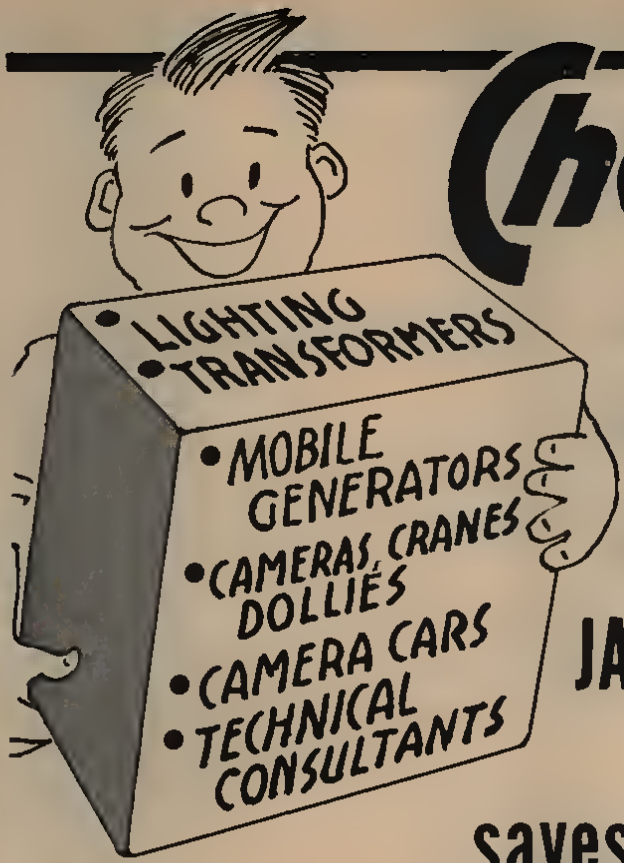
A.—Making motion pictures for profit is no different than any other business It is labor, material, overhead plus profit, You should put down on paper your actual production cost and figure whatever profit you want to make It is as simple as that Actually, there is no yardstick by which you can determine what to charge a sponsor or client for a motion picture The motion picture business was never that simple

Q.—*Can the new Eastman Kodachrome II film be used for single system sound film production? If not, is the limitation in the film or the processing? I have an Auricon Cine-Voice camera and a dealer's catalogue of Eastman films which has a notation to the effect that Kodachrome II is not suitable for sound recording Why is this?*—J J. K. Pittsburgh, Pa

A.—Kodachrome II is not recommended for optical sound recording because it is strictly an amateur film and was not designed for sound recording In other words, there are not the necessary properties in the emulsion to render a satisfactory optical sound track

An alternative is to record the sound separately on the appropriate medium (sound film or magnetic tape) to produce a sound track negative that can be printed together with the release prints of your film In this method, through a multi-step process, your original Kodachrome II film would be printed on a color release stock which would take the sound recording and render it as an optical track in the usual professional manner.

Need professional advice on a picture making problem? Readers questions will be answered by mail when accompanied by stamped envelope for reply Questions and answers considered of interest to readers will be published here



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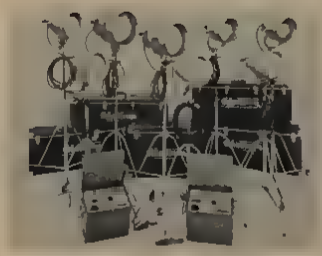

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ASC RECOMMENDATION NO. 9

35mm Camera Aperture Dimensions

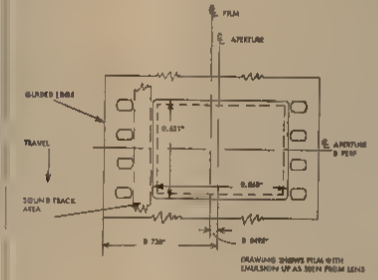
By WALTER BEYER

Chairman, ASC Research and Educational Committee

THIS RECOMMENDATION specifies the camera aperture dimensions and ground glass markings for; A) Wide Screen (flat) Photography (Fig 2), B) Anamorphic (squeezed) Photography (Fig 3); both recognizing specific clearance for a sound track area inside the perforation. Further dimensions are given for C) Full Screen Photography (Fig. 4) utilizing the full width inside the perforation for picture information without any clearance for a sound track area.

The aperture dimensions and ground glass markings as outlined in this Recommendation are strictly specifications related to the production of 35mm films for theatrical use

Detailed specifications on aperture and ground glass markings for 35mm films photographed for TV are given in ASC Recommendation #4.

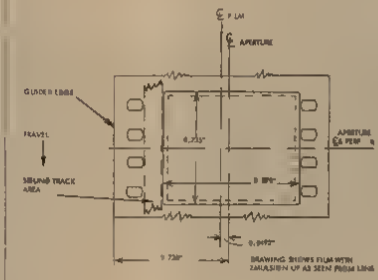


DIMENSIONS 35MM ACADEMY CAMERA APERTURE FOR WIDE SCREEN (FLAT) PHOTOGRAPHY.

The camera aperture for wide screen (flat) photography shall be 0 868"x0 631" plus/minus 0 002" with the center line 0 738" from the guided edge The dotted ground glass marking as per drawing shall enclose an area of 0 825" in width

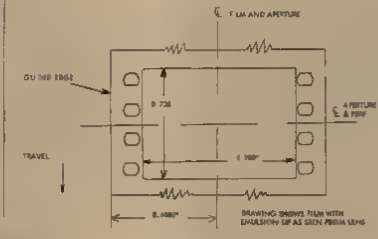
The height of this area for the different aspect ratios shall be as follows 0 600" for 1 33/1 AR, 0 497" for 1 66/1AR, 0 472" for 1 75/1AR and 0 446" for 1.85/1AR

Note The above aperture dimensions (but not the ground glass markings) also prevail on *cameras used for films for TV —see ASC Recom #4*



DIMENSIONS 35MM CAMERA APERTURE FOR 2:1 RATIO ANAMORPHIC PHOTOGRAPHY

The camera aperture for anamorphic (squeezed) photography shall be 0 870" x0 735" plus/minus 0 002" with the centerline 0 738" from the guided edge. The dotted ground glass markings as per drawing shall enclose an area of 0 839" in width and 0 690" in height



DIMENSIONS 35MM CAMERA APERTURE FOR "FULL SCREEN" PHOTOGRAPHY.

The camera aperture for "Full Screen" photography shall be 0.980"x0 735" plus/minus 0 002" with the centerline of the aperture coinciding with the centerline of the film 0 6885" from the guided edge

Note Whenever "Full Screen" photography is reduced for use within the field of the Academy aperture (see Fig. 2) it is necessary to offset the full screen centerline 0 0495" away from the guided edge to coincide with the centerline of the Academy aperture

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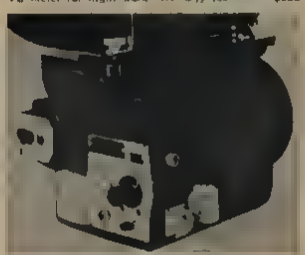

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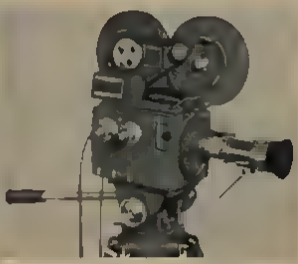

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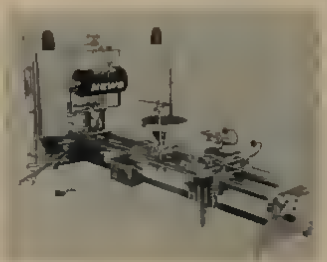

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BEHIND THE CAMERAS

WHAT THE INDUSTRY'S CAMERAMEN WERE SHOOTING LAST MONTH

By MARION HUGHINS

NOTE Asterisks following titles indicate television film productions.

AMERICAN INTERNATIONAL

FLOYD CROSBY, ASC, "The Young Racers" (Pathe color; shooting in Monte Carlo) with Mark Damon and Luana Anders. Roger Corman, producer director.

BILTMORE STUDIOS — N.Y.

JACK PRIESTLY, "Naked City"* (Screen Gems).

BIOGRAPH STUDIOS — New York

GEORGE STOETZEL, ASC, "Car 54 Where Are You?"*.

CASCADE STUDIOS

HENRY FREULICH, ASC, Commercials*.
ROY SEAWRIGHT, Commercials*

COLUMBIA STUDIOS

ARTHUR GRANT, "The Old Dark House" (Wm Castle Prod Hammer Films, color, shooting in England) with Tom Poston and Robert Morley. William Castle, director

WILKIE COOPER, "Maniac" (Hammer Films; shooting in England) with Kerwin Mathews and Nadia Gray. Michael Carreras, director.

DOUGLAS SLOCOMBE, "The L-Shaped Room" (Romulus Films, Ltd., shooting in England) with Leslie Caron and Tom Bell. James Woolf, director.

JOSEPH BIROC, ASC, "Bye Bye Birdie" (P'Vision, Eastmae color) with Janet Leigh and Dick Van Dyke. George Sidney, director

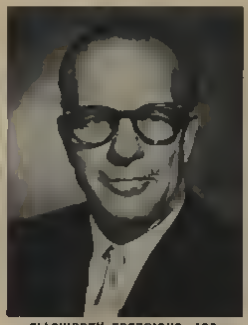
SAM LEAVITT, ASC, "Diamond Head" (P'Vision; Eastman color, shooting in Hawaii) with Charlton Heston and Yvette Mimieux Guy Green, director

IRVING LIPPMAN, "Route 66"*

CHARLES WELBORN, "Empire"*

GERT ANDERSEN, ASC, "Donna Reed Show"*

FRED YOUNG, "Lawrence of Arabia" (Super P'Vision, Eastman color, Horizon Pictures (GB); Columbia release, shooting in Spain) with Alec Guinness and Anthony Quinn David Lean, director



ELLSWORTH FREDRICKS ASC
Photographing "A Woman of July." in Cinemascope and color at 20th Century-Fox Studios

WALT DISNEY PRODUCTIONS

GUNTHER ANDERS, "The Miracle of the White Stallions" (shooting in Vienna) with Robert Taylor and Eddie Albert Arthur Hiller, director.

EDWARD COLMAN, ASC, "Son of Flubber" with Fred MacMurray and Nancy Olson Robert Stevenson, director

FILMWAYS — MGM

HAL MOHR, ASC, Commercials*.

TOM TUTWILER, ASC, "Shell's Wonderful World of Golf"*

FILMWAYS—New York

MORRIS HARTZBAND, "The Defenders"* (CBS) Boris Sagal and Buzz Kulick, directors.

FOX WESTERN AVENUE

JAMES VAN TREES ASC "Dobbie Gilles"*

JAMES WONG HOWE, ASC
Photographing "Hud Bannon" at Paramount Studios, starring Paul Newman

INDEPENDENT

MONROE ASKINS, "The Sweet and the Bitter" (James Clavell Hollyburn Film Prod shooting in Canada) with Yoko Tani and Paul Richards James Clavell, producer director

LUCIEN BALLARD, ASC, "The Caretakers" (Hall Bartlett Prod., UA release) with Robert Stack and Polly Bergen. Hall Bartlett, producer-director.

DANIEL L FAPP, ASC, "The Great Escape" (Mirisch-Alpha Prod , UA release, P'Vision & Color, shooting in Munich) with Steve McQueen and James Garner John Sturges, director.

JOE MANCERI, "Guns of Fort McDowell" (shooting in Grand Junction, Colo) with Kelo Henderson and Smokey Wade Joe Kane, director

STANLEY CORTEZ, ASC, "The Return of Mr H" (SAN S Prod , C'Scope & Color) with Audrey Caire and Walter Stocker David Bradley, director

ERNEST LASZLO ASC, "It's A Mad, Mad, Mad, Mad World" (P'Vision Technicolor,

LOYAL GRIGGS, ASC
Shooting "Papa's Delicate Condition" at Paramount with Jackie Gleason.

Stanley Kramer Prods) with Spencer Tracy and Milton Berle Stanley Kramer, producer director.

EDMOND SECHAN, "Grand Duke and Mr Pimm" (Oxford Prods., P'Vision-Color; shooting in Nice) with Glenn Ford and Hope Lange. David Swift, director

KEYWEST STUDIOS

FRED WEST, ASC, (Family Films) Series of Religious pictures

METRO-GOLDWYN-MAYER

JOSEPH RUTTENBERG, ASC, "The Hook" with Kirk Douglas and Nick Adams. George Seaton, director

PAUL VOGEL, ASC, "Period of Adjustment" with Anthony Franciosa and Jane Fonda George Roy Hill, director

HARKNESS SMITH, "Dr. Kildare"*

DALE DEVERMAN, "The Eleventh Hour"*.

WILLIAM SPENCER, "Sam Benedict"*

ROBERT HAUSER, "Combat"*.

GEORGE KRAUSE, "Tunnel" (Walter Wood Prod , shooting in Munich) with Don Murray and Christine Kaufmann Robert Siodmak, director

PARAMOUNT STUDIOS

JAMES WONG HOWE, ASC, "Hud Bannon" (P'Vision) with Paul Newman and Melvyn Douglas. Martin Ritt, director

LOYAL GRIGGS, ASC, "Pope's Delicate Condition" (Fmro Prod ; color) with Jackie Gleason and Glynis Johns George Marshall, director

CLAUDE RENOIR, "Paris When it Sizzles" (Color, shooting in Paris) with William Holden and Audrey Hepburn Richard Quine, director

HASKELL BOGGS, ASC, WALTER CASTLE, ASC, "Bonanza"*.

ARTHUR ARLING, ASC, "My Six Loves" with Debbie Reynolds and Cliff Robertson. Gower Champion, director

LOYAL GRIGGS, ASC, "Girls' Girls' Girls'" (Hal Wallis Prod , color, shooting in Hawaii) with Elvis Presley and Stella Stevens. Norman Taurog, director.

FRANK PHILLIPS, "Have Gun Will Travel"*.

FLEET SOUTHCOTT, "Gunsmoke"*

PRODUCTION CENTER—N. Y.

WILLIAM STEINER, ASC, Musical Feature (Harry Romm Productions) with Gary Crosby and Joey Dee. Greg Garrison, director

Continued on Page 446

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SHOOTING ON LOCATION for "Ride The High Country," M-G-M production co-starring Joel McCrea and Randolph Scott. Watching a rehearsal is director of photography Lucien Ballard, ASC, in western hat, center of picture. Above him is actor Scott. Director Sam Peckinpah is seated in foreground.

How resourcefulness solved the many photographic problems encountered by Lucien Ballard, ASC, in photographing

'RIDE THE HIGH COUNTRY'

By DARRIN SCOT

PRODUCTION PROCEDURES and attitudes in budget-conscious Hollywood today are quite different from those that prevailed a few years ago when, if the weather suddenly changed, a company shooting on location would shut down operations and patiently wait until the weather was once more ideal for photography. Today, however, production costs are so high that the current dictum is to keep on shooting no matter what the conditions.

This, of course, throws enormous responsibility on the director of photography, especially when shooting in color, for he must often match visual mood, color quality and photographic style in scenes shot under a variety of conditions and in widely separated locales while at the same time aim to preserve consistent visual continuity so that such scenes can easily be intercut with each other.

Such was the challenge of "Ride the High Country," an M-G-M color production photographed by Lucien Ballard, ASC. The story is primarily one of exterior action. It was originally planned to shoot all the exteriors on location at Mammoth Lake, an area of spectacular mountains and waterways 300 miles north of Hollywood. Mammoth is California's foremost ski resort where snow usually does not begin to fall until late in November. The company moved into the area in October and had confidently spent four days shooting sequences of action against magnificent scenic backgrounds when a sudden snow storm, "unusual" for that early in the season, swirled in and brought production to a halt.

Even though only a small portion of the scheduled exterior scenes had been shot, the production budget and short shooting schedule ruled out waiting for a possible change in the weather. The alternative was to keep on shooting, and to substitute other snow-free locales and attempt to match backgrounds and other visual elements of scenes that would intercut directly with footage already shot at Mammoth.

The problem now became one of what to avoid rather than what to include in compositions. For example, skies in the Mammoth area at an elevation of 10,000 feet were clear and deep-blue, while the smog-shrouded skies in the alternate locations near Hollywood were a dull, leaden-gray. To make matters worse, a disastrous brush fire was at the same time sweeping through near-by Bel Air and Topango Canyon, casting a pall of smoke over a wide area of Southern California. With the sky thus changed so drastically from the beautiful blue that was encountered in the Northern location area before snow began to fall, Ballard was now compelled to draw upon his resourcefulness and plan his camera set-ups to avoid any large sky areas appearing in scenes shot in nearby Hollywood locations. Wherever possible, scenes were

played against trees, rocks and shadow areas.

Such pictorial deception is not always easy to achieve when the scenes are intended to be intercut with scenes made earlier under bright skies. Where a measure of sky could not be entirely avoided in such scenes, and providing the area was small, Ballard used a Pola screen filter to intensify what little blue came through the overcast.

When faced with the problem of matching terrain features in scenes that were to be directly intercut with those filmed at Mammoth Lake, Ballard reasserted the fallacy of the ancient axiom: "A tree is a tree — a rock is a rock . . ." In shooting bits and pieces of tie-in scenes at nearby Bronson Canyon, Frenchman's Flat, the Conejo Valley, Malibu Canyon, 20th-Century Fox Ranch, and the M-G-M backlot — he sought to isolate fragments of topography which, through careful camera angling, could be made to approximate visually the scenes already shot at Mammoth. The differences in terrain were often as divergent as one might expect to find on separate planets. In one triumph of photographic magic he actually succeeded in making a plowed field look like a rock-strewn mountain slope.

CINEMATOGRAPHER Lucien Ballard (left) and actor Joel McCrea swap stories of their early-day experiences on the various Hollywood studio lots, during a lull in shooting "Ride The High Country"

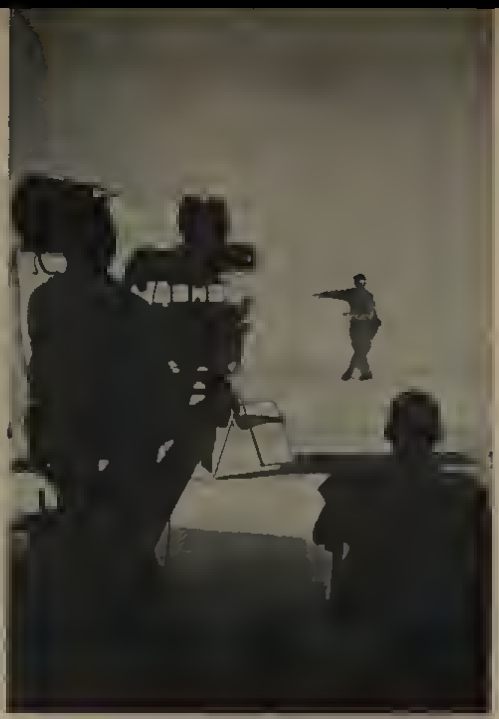
One might logically expect the sum total of all this legerdemain to be a patched-up, visually disjointed photographic hodge-podge. The miracle lies in the fact that, quite to the contrary, the finished picture emerges as a smoothly flowing outdoor action spectacle that appears to have been photographed completely within a single mountain locale.

In the scenes that Ballard shot at Mammoth prior to encountering snow, he used the fluid sweep of the Chapman boom to capture the full panoramic scope of natural vistas. In one sequence the protagonists are shown camped beside a rushing creek, the background being completely screened by aspen trees in colorful autumn foliage. As the men mount horses, the boom-mounted camera follows them, soaring above the aspens to reveal the full majesty of the towering mountain range toward which they rode. In another dramatically pictorial shot, the camera starts at a high angle, focused down on the men beside a section of lake bordered with jagged tree stumps. The boom, positioned part way up a hill, rises with them as they climb to the summit and survey the sweeping vista spread out below. The boom was again used to advantage to achieve smooth follow shots of the men on horseback as they rode toward their objective. The relatively high position of the boom arm permitted the crane to roll smoothly along the highway while staying on a tight trucking shot of the riders themselves.

The story of "Ride the High Country" recounts the adventures of two tired ex-gunfighters (Randolph Scott and Joel McCrea) who, accompanied by the usual young whippersnapper (Ron Starr) are hired to pick up and transport a shipment of gold from a wild and woolly mining camp known as Coarse Gold. Along the way, fore and aft, they en-

Continued on Page 438

TWO SCENES from "Ride The High Country" which illustrate set lighting techniques of Lucien Ballard, ASC, who photographed this color production for Metro-Goldwyn-Mayer. More formidable lighting problems were encountered on exteriors, which had to be photographed in different locations and carefully matched for lighting and pictorial continuity.



ENTIRE ACTION of garage mechanic, played by Gus Howard, was photographed in single frame exposures to achieve fast, staccato action—a technique film makers call 'pixillation.'

PIXILLATION — NEW

By WILLIAM R. WITHERELL JR.
Creative Director, Video Films incorporated

PIXILLATION CAN BE quickly defined as: animation of the human figure. Like animation, it involves single-frame motion picture photography of successive fragments of an action to create, on the screen, the appearance of motion. Also, as in animation, the subjects can be made to accomplish superhuman or non-human feats, the speed of action can be precisely controlled and the physical laws of momentum, gravity and other related phenomena can be repealed at will.

Although pixillation was practiced to a limited extent by several of the early film pioneers, it really came into its own as an experimental art form in 1952 when Norman McLaren of the National Film Board of Canada used it to great advantage in a powerful human relations allegory entitled "Neighbours," which received an Oscar in 1953 from the Academy of Motion Picture Arts and Sciences in the Documentary Short category. In "Neighbours," two men, intoxicated by the perfume of a small flower that springs up on a mutual boundary line, float gleefully over the ground and accomplish other normally impossible feats. A savage climax pits the two protagonists in a bloody bit of mayhem that is far more effective than if it had been photographed by standard procedures.

McLaren's history as an innovator includes such unorthodox procedures as drawing pictures directly on clear film base and creating non-electronic sound tracks with pen and brush. It would be short-sighted to state flatly that these approaches have no commercial application, but it seems safe to say that of his three best-known contributions to the film art, pixillation holds the most interest for those who labor in the creative and technical vineyards of theatrical and non-theatrical films.

It holds all the more interest because both the method and the capability have yet to be fully exploited. The fantasy and savagery of "Neighbours" was accomplished under conditions that would tax the credulity of a commercial film producer. The entire action is staged outdoors, with the accompanying problems of twitching tree leaves, changing color temperatures and moving shadows. The camera used was a Cine Kodak-Special, and the 1,440 single-frame exposures that were required for every minute of pure pixillation were triggered manually. It should be noted that the pure pixillation sequences are augmented by running camera shots, undercranked shots or other variations to change the tempo or stretch the effect. Even so, "Neighbours" represents a considerable effort on the part of a minimum crew.

At Video Films, we recently had opportunity to produce a pixillation sequence as part of a 24-minute sound and color film for the Walker Manufacturing Corporation to help muffler replacement salesmen at the retail level answer and overcome customer objections. Unlike Norman McLaren, we were able to produce the pixillation sequence under more advantageous conditions. We had the use of a large studio and excellent equipment. In the course of making tests and during the final shooting, we uncovered several helpful procedures.

The first of these were the pre-production tests. Just as a pencil test is used to check action in animation, so a simple rehearsal on film is good insurance for pixillation. We made black-and-white tests of people performing various maneuvers to determine increments of action and the screen effect of their moving in various poses. Whatever the expense of such rehearsals, it is far less costly than a badly executed sequence filmed with full crew, talent, sets and props.

We proved that fragmentation of normal action,

TECHNIQUE WITH COMMERCIAL POSSIBILITIES

How an art farm of experimental film makers was used to advantage in a sales training film.

THIS SERIES OF photos depicts steps in photographing the pixillation sequence for training film designed to aid muffler replacement salesmen. Utilizing pixillation, vital action is time-compressed, animation fashion. In photo 1, garage mechanic shuffles toward rear of car from position near driver. In 2, he assumes one of several poses required to get him from upright position to flat on floor. In 3, photography of the fragmentation action continues. Man carries tools necessary to remove car's defective muffler. In 4, mechanic is about to lower feet

and rest flat on back. Photo 5: now flat on floor, mechanic inches his way under car with no visible means of locomotion, then reappears with old muffler. In 6, actor Gus Howard assumes one of the 200 poses that were necessary for the beginning of the pixillation sequence of an imagined encounter with a beautiful customer-prospect for a replacement muffler

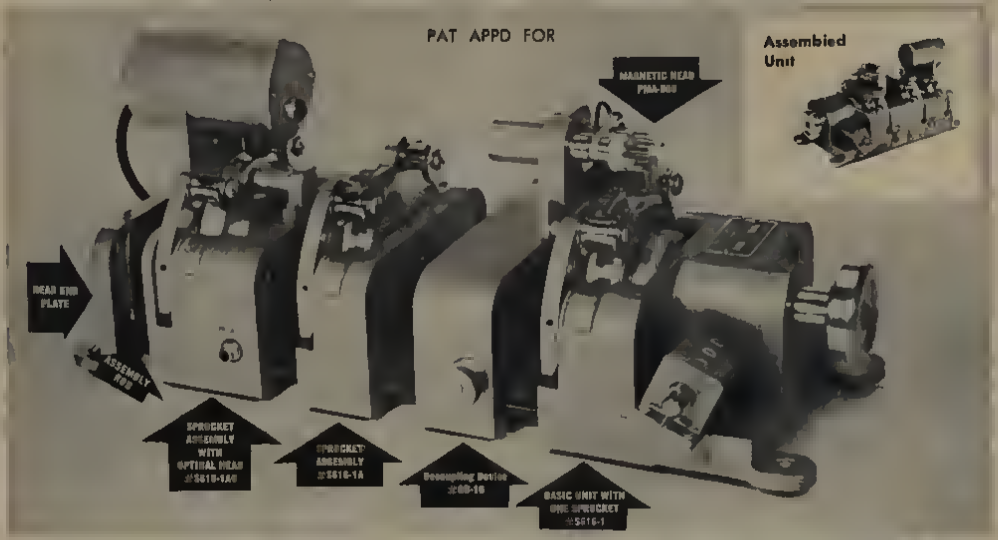
such as walking or bending, was, in most cases, a waste of effort. The figure sliding on one foot or moving around the room with both feet off the ground is a far more successful use of the technique. Nor is constant motion as interesting as motion interspersed with abrupt starts and stops. Creatively, your are dealing in unreality. The less likely the action, the more fascinating the effect.

Technically, exposure is the least problem of all. Generally, single-frame exposures admit more light to the film than standard speed exposures. Very low lighting levels can be used, which is an advantage because pixillation sequences are physically demanding of the actor and emotionally trying on the director and crew.

Perhaps our most important discovery concerns the method of making the exposures. Our tests showed that individual single-frame exposures, made each time our subject reached a new position in an action sequence, resulted in the same kind of strobe effect that is evident in most cel animation.

Continued on Page 445

ANOTHER FIRST BY PRECISION! PRESENTING THE UNITIZED SYNCHRONIZER



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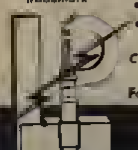

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BECAUSE ANIMATED CHARACTERS must entertain as well as motivate the sales message, characterizing an animated commercial to suit the sponsor's product is an important step in the pre-production planning

Production Procedures For Animated Commercials

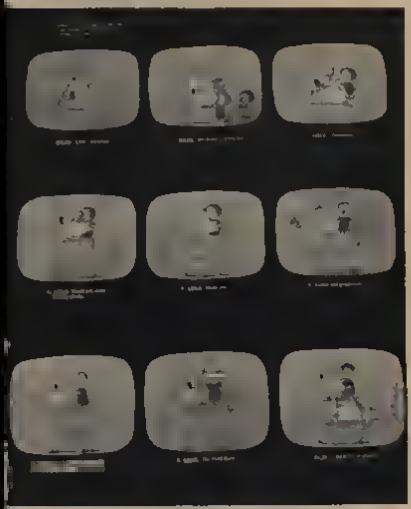
The animated commercial is the film industry's answer to the "hard sell." Born on the theory that you cannot sell to someone who is walking away, it has become a major medium for television sales communication. The humor inherent in animation assures the sponsor that his product will be displayed before an attentive, non-antagonistic audience.

By ADRIAN WOOLERY
President, Playhouse Pictures, Hollywood

ANYONE WHO watches TV regularly knows the impact of the animated TV commercial. Producing 60-second spot commercials for television is big business. A 60-second spot may cost a sponsor anywhere between $3,000 and $12,000 and take from eight to twelve weeks to produce—the same production time required for many half-hour TV film series.

Because animation and humor are synonomous in film presentations, the humorous approach in a short, 60-second TV commercial invariably produces the best results. Having been raised on comic strips for generations, Americans readily accept the humor they find in this type advertising. Thus, Charley Brown, Peanuts and the rest of their comic gang have proved to be good salesmen for Ford Falcon cars. And the boisterous Old Pro does all right for his sponsor, singing the praises of Falstaff Beer.

How the humorous approach was effectively applied in a typical TV commercial is exemplified in the one Playhouse Pictures produced recently for the United States Navy. The Navy had asked us to develop a humorous animated commercial that would promote enlistments. There were several special considerations. A limited budget made it necessary to cut corners without sacrificing quality. Also, the commercial would be offered to stations for public service presentation since there was no budget for commercial time. Therefore, the commercial had to be better—more entertaining—than other public service commercials in order to capture its fair share of air time.



PRESENTATION BOARD for an animated commercial as the producer would present it to the sponsor or advertising agency for approval.

One of the first decisions was to produce the commercial in color, since it would offer extra incentive to stations featuring color programs. Second, we decided to take advantage of the economy of 16mm production—so film, laboratory and print costs would be lower.

Continued on Page 436

Tricky Filming For A Tricky Picture

Imagination and resaurcefulness played big part in the production af this novel film being shawn daily in the Philca Corporatian exhibit at the Seattle Warld's Fair.

By ROY ZEPER
Chief Photographer, Philco Corporation

A NOTABLE THING about the Seattle World's Fair is the number of instances where motion pictures are used as important adjuncts to exhibits. One of these is the continuous film presentation at the Philco Corporation exhibit —a film loop 252 feet in length which is exhibited intermittently for periods of seven minutes each throughout the day.

The presentation comprises two product demonstrations, each 1½ minutes in length, and two footage segments of equal length showing manned space craft in orbit. The latter set the theme for the Philco presentation, which is designed to show the futuristic kitchen appliances — Philco's of course! — likely to be found in homes fifty or a hundred years hence.

The product demonstration footage was shot in 35mm black-and-white, then reduction-printed to 16mm; voice-over narration ties the theme together and a 15-second musical interlude backs up the segment of black leader that separates the begining and the end of the film loop.

SET UP FOR PRESENTING novel motion picture to visitors at Philco's exhibit at Seattle World's Fair. Endless loop of film, 272 feet in length, is mounted on panel immediately above projector. Latter beams picture to closed circuit TV camera which feeds picture to several TV receivers set up within exhibit

The futuristic appliances seen in this film originated in the fertile mind of our scriptwriter, Hugh Harper, following talks with engineers of Philco's Advanced Design Labs. The tough filming shots imposed were solved by utilizing just about every film trick in the book.

The housewife of the future is depicted depressing a button at a small control panel, which activates a radio-controlled food cart, making it subservient to her will. This apparently receptive food cart was made to function as if radio controlled by offstage 'grips' pulling thin clear nylon fishing lines — stopping, starting, or swerving when it approached an obstruction—all on cue. Similarly, the flick of a switch on the control panel activates the weekly food storage compartment in the space age kitchen, releasing and distributing to an electronic microcooker all the pre-packaged foods necessary for a family meal. The food, cooked almost instantaneously, is then dispensed to a traveling cart which obediently rolls up to the dinner table—after stopping

PHOTOS ABOVE AND AT LEFT depict action in special film presentation for Philco's Fair exhibit, which suggests how the spaceage housewife's life will be made simpler by the wonders of electronics which, among other things will select and cook the food for a family. Housewife will merely push buttons instead of peel potatoes, check action in nursery by closed circuit TV, and lead a happy, simple life. To produce the 'magic' action in film required use of many conventional movie tricks, precise photography

enroute to obtain coffee from an automated coffee maker.

Radio-controlled windows, flashlight-size TV receivers, an unattended automobile miraculously emerging from the family garage under electronic control are other innovations of the future depicted in this Philco film.

Such movie legerdemain naturally involved numerous camera tricks and no little inventiveness to achieve. One sequence alone involved the use of aerial image techniques, rear projection process, and animation cel overlays. Still others, superimpositions, split-screen and matte shots.

At one point, the script called for the space-age housewife to check on the progress of an automatic, radar-equipped vacuum cleaner working in another room by watching its progress on a closed-circuit television receiver. The picture on the receiver was done by matte shot process. To photograph this insert, it was necessary to shoot the vacuum cleaner action in stop-motion in a series of single-frame exposures as it moved about the floor, circled chairs, and exited from the room unattended.

Most in-plant industrial film production crews, like ours, must create most of their sets and obtain the props for their films. Producing the settings for this particular film taxed the imagination and ingenuity of our crew. From the start, we had the problem of an extremely limited shooting period for each subject. Our primary aim was to condense time and make each shot depict the necessary action with the least amount of footage. We did not have time to build up to conventional filmic situations, but had to include the script-action and establish the futuristic setting usually in a single take.

One way we beat the footage-time limitations, was by condensing several shots into one continuous take. This also lent added interest, made for more fluid shots, and tied the related bits of action together more satisfactorily. Similarly, it showed the spatial relationship between objects as the camera moved from one to the other. For instance, several scenes called for the housewife to press buttons on the control panel, which then activated the various automatic household appliances. The script called for three separate shots: an establishing long shot, a closeup of the housewife's hand depressing the button, and a cut to the inanimate appliance coming to life and performing its task. We talked this over with our writer-director, and he agreed to the suggestion of telescoping all this action into one continuous take. We aligned the control panel with the area where the appliance's action would transpire, and set the camera quite high, looking down on the control panel. We started with a closeup of the panel; the hand came in and pressed the button. The camera was then tilted slowly upward, looking over the control panel and showing the appliance. The assistant cameraman gradually changed focus as the camera was tilted; simultaneously, several assistants, stationed off-camera, set the appliance in motion, according to its function. All this may sound quite easy, but it called for split-second timing, which was achieved through careful preparation in pre-production rehearsals.

One portion of the kitchen sequence was to show the probable

Continued on Page 434

SHARP—the way prints *should* look. And that's the way they *will* look if you match the right EASTMAN negative with *the right print-stock!* In other words . . . Go EASTMAN all the way! And if you have questions—film selection, processing—get in touch with Eastman Technical Service.

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TYPICAL SCENE from the original "The Cabinet of Dr Caligari, filmed in 1919, displays the distorted, stylized sets that marked the production, with light and shadow effects painted in.

SCENES IN THE 1962 version are completely contemporary except for exaggerated lighting effects that point up the macabre theme of the story and maintain the proper pictorial mood

From 'Caligari' To 'Caligari'

A comparison of the modern version with the 1919 original.

By HERB A. LIGHTMAN

IN 1919 THERE WAS produced in Germany a film so original in theme and treatment that several critics of the time predicted it would revolutionize all prevailing concepts of motion picture technique. While it failed to do so, "The Cabinet of Dr. Caligari" did become something of a classic and it is still regarded by serious students of the screen as an important milestone in the development of the cinema as an art form. Its historical importance stems from the fact that it was the first picture to use psychiatry as a theme, the first to use a subjective approach in its story-telling method, and the first to employ a completely expressionistic design in settings and costumes.

JOHN RUSSELL, ASC
Photographed
"The Cabinet of Caligari."

Today—forty three years later—a new and provocative remake of this classic has been produced by Robert L. Lippert. Called simply "The Cabinet of Caligari"—the title of "Dr." having been dropped for sake of brevity—it is a carefully-made psychological drama distinguished by skillful direction, convincing performances, striking set design and highly imaginative photography by John Russell, ASC.

Comparisons between the two "Caligaris" will inevitably be made, and it is interesting to note the changes in story line that have been effected to pique the interest of modern audiences, as well as the advances in visual presentation that have been made reflecting more than four decades of progress in motion picture technique.

The genesis of the previous "Caligari" becomes of interest in tracing the evolution of the vehicle up to its present version. The original script was authored by two young and relatively inexperienced writers—Hans Janowitz (a Czech) and Carl Mayer (an Austrian). Janowitz was obsessed with memories of a brutal sex murder that had occurred on an evening when he was visiting a fair in Hamburg. Mayer, too, had his obsession—in this case, a smoldering resentment of the psychiatrist who had relentlessly probed into his psyche during his late army career. Meeting in Berlin at the end of World War I, the two young men compared obsessions and vaguely speculated on merging their respective traumas to form the basis of an unusual

screenplay. They both felt, however, that there was an element still missing. One night, while visiting a gaudy carnival in Kantstrasse together, they were attracted to a sideshow featuring a strong-man who accomplished prodigious feats of strength under an apparent hypnotic spell while, at the same time, himself spellbinding the spectators with eery prophecies of the future.

Both men recognized this as the story element they had been searching for. In a froth of creative fervor the two would-be scenarists spent the next six weeks whipping up a fantasy in which their three diverse experiences became blended into a unified plot structure. They christened their main character "Caligari," borrowing the name from a personality mentioned in "Unknown Letters of Stendahl". The script was readily accepted for production by Erich Pommer, then chief executive of Decla-Bioscop Productions.

The story concerned a mysterious character (Dr. Caligari) who exhibits at a small town fair in North Germany a somnambulist (Cesare) whom he keeps in an upright coffin and who is capable of prophesying the future while in a hypnotic trance. In reality, Caligari is using Cesare as an instrument of murder, eventually arousing the suspicions of a student (Francis) whose friend (Alan) becomes the victim of such a prophesied murder and whose fiancee (Jane) is kidnapped by Cesare. Francis pursues Caligari (who seeks refuge in an insane asylum), and is horrified to discover that the director of the asylum and Caligari are one and the same.

With the aid of members of the institution's medical staff, Francis finds in the director's office a volume telling of a demented 18th Century showman, Caligari, who used his hypnosis-dominated assistant, Cesare, to commit murder. Confronted with evidence that he has been re-enacting this gory charade through control of a somnambulist placed in his care, the director goes raving mad and is carted off to his own madhouse in a straight-jacket.

Such was the complete story as originally conceived by its authors —a straightforward narrative represented as realistic, if somewhat macabre, drama. However, the director assigned to the early "Caligari" film, Dr. Robert Wiene —no doubt influenced by the fact that his own father had gone insane—preferred to represent the body of the original story as an hallucination raging in the mind of an insane asylum patient. Over the violent but ignored protests of the two authors, this story was placed within a "frame" which introduced Francis, sitting on a bench on the grounds of the asylum, recounting the foregoing story to another patient. Irising out crudely into a flashback, the film depicts his narrative in visual action. On its completion, the flashback returns to the present and we discover that Alan, Jane and Cesare (a harmless, flower-sniffing type) are also inmates of the asylum. The appearance of the asylum's director, a kindly gentleman only faintly resembling Caligari, throws Francis into a frenzy of accusation. He is subdued by attendants and examined by the solicitous doctor who opines that he now knows the nature of the patient's dementia and can successfully treat it.

The modern version of the film, "The Cabinet of Caligari," not only has no identifiable "cabinet" to justify the title, but has little else in common with the original as far as plot line is concerned. There are no murders, no fair, no Francis, no Cesare. The story elements shared commonly by the two versions are: (1) The fact that the main body of the narrative is actually the hallucination of a mental patient, and (2) the duality of characterization in which the evil Caligari and the kindly psyciatrist are ultimately revealed as one and the same man.

The modern version, much more subtle in approach than its predecessor, avoids the obvious flashback technique in order not to tip its hand and ruin the suspense. In it, Jane, an attractive woman in her middle twenties, is driving along a country road on a spur-of-

Continued on Next Page

DIRECTOR OF PHOTOGRAPHY John Russell (right) looks on while camera crew makes a dolly shot for dramatic sequence in "The Cabinet of Caligari." Set is "indoor-exterior" erected on sound stage

THREE SCENES ABOVE from the 20th Century Fox release, The Cabinet of Caligari, exemplify the mood lighting which cinematographer John Russell employed to add dramatic impact to scenes in this modern version of a 1919 movie classic.

the-moment vacation, when she has a flat tire. Unable to find a jack or get help, she proceeds on foot until she arrives at an imposing mansion set in the midst of a walled, park-like estate. The day has turned dark and forbidding. Her knock on the door is answered by a bearded, faintly sinister middle-aged man who introduces himself simply as Caligari. He takes her into his library, gives her a drink and sends his chauffer to check on her car. Since the car needs repairs, Jane—who is strongly attracted to Caligari—is invited to stay the night. She does so and goes to bed, not knowing that her host has locked her bedroom door from the outside.

The next day she goes to Caligari's study and he invites her to stay on. But she is shocked when he shows her some obscene cards and she flees from the room, only to faint from drugged coffee and be taken to her own room by Caligari's servants.

Realizing that she is trapped by some sort of madman, she has no choice but to play along until she can find some means of escape. At dinner that night she meets Paul, a gently sympathetic gray-haired man whom she takes to be Calagari's doctor. She meets several other house guests of assorted ages and types, including a romantic young man named Mark who, she concludes, may also be a prisoner in the house. She is much attracted to him but, at the point of embrace, suddenly denounces him as callow and rejects him.

She goes up to her room to take a bath. While lying in the tub she spies Caligari peering down at her through a glass port in the ceiling. Pulling on a robe she goes to confront Caligari; instead, she finds herself stalked in the dark hallway. Grabbing a piece of broken glass, she almost stabs the stalker who turns out to be Mark on his way down from Caligari's office.

Encouraged by the kindly Paul, she faces Caligari and begs him to free her, even offering to do "anything" for him if he will oblige. Coldly ignoring her none-too-subtle offer, he overwhelms her with prying questions and she once again flees from his study. All her efforts to escape are frustrated. A guest who tries to help her is brutally beaten for her pains. She finds a lock on the telephone when she attempts to call for aid. In a

Continued on Page 441

MINIATURE SET, constructed one third scale, is only one utilizing the stylized design which marked the original "Caligari." This set was photographed as a process plate against which action in the picture's climactic sequence was played.

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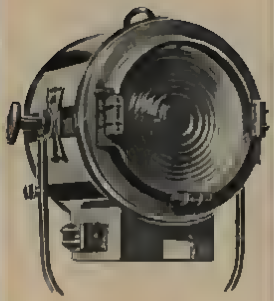

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ULTRA-WIDE

PANAVISION'S new 65mm camera is streamlined self blimped, and just slightly larger than a Mitchell BNC Two of its salient features are a new type movement and 200° shutter

MITCHELL 65MM camera, as used in Todd AO and early Panavision photography Camera is made to order and is similar to the popular Mitchell BNC

By LOWELL A. BODGER

THE DIFFERENCES BETWEEN the various wide screen systems in use today must be a source of confusion to the professional, if not a bewilderment to the film-going public. The array of dynamically new horizontal formats which have graced a chosen few of the world's screens in recent years is as varied as the technical processes involved. Herein is a brief background and definition of the current roster of processes which are designed to fill what has come to be called the "ultra-wide screen."

Behind cinematic advance in size is the producer's increased concern with audience participation. Cinerama travelogues and the 3-D horror films of the early fifties led a trend of techniques aimed toward closer involvement between the viewer and the film's action and sound. When a member of the audience can have a majority of his field of vision filled with a moving screen image, he is drawn more effectively into the subject matter, and firstly toward the box office.

It is apparent that producer and audience interest must be coincident with technical innovation, for the author's study of wide screen photography revealed numerous early attempts which are the basis of present practices, but which were never exploited fully at the time of their invention. D. W. Griffith occasionally matted scenes along the top and bottom to yield a narrow "wide" image in the remaining center. Experiments were also carried on in the early days with multiple projected images, side by side, as in Cinerama. The first VistaVision

REPRODUCTION of a CinemaScope film clip from an Eastman Color 35mm negative, showing "squeezed" image

SCREEN SYSTEMS

The cameras, film widths and screen formats that are emplayed in present-day ultra-wide screen feature film praductian.

feature was filmed using a camera whicb had been built in the late 1920's as a conversion of the Natural Color system camera, and several of the 65mm Mitcbells used in pbotographing *Ben Hur* had been constructed as 70mm cameras in the 1930's, and required only slight conversion. Taking a long view, the reader may see adaptability and financial practicality as factors whicb lacked in these systems three decades ago, but whicb have been realized more recently.

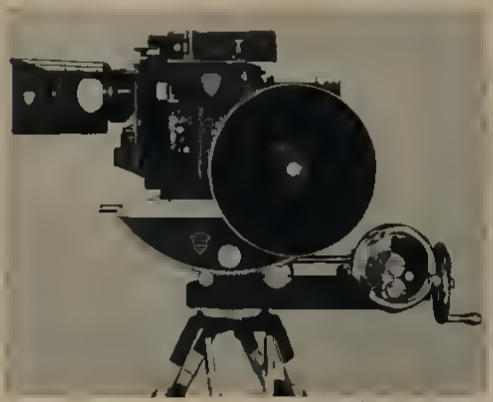
CinemaScope, introduced in 1953 and held as tbe pioneer of modern wide screen pbotography, has as its basis *anamorphic* distortion. Anamorphosis is not an invention of 20th Century-Fox, but rather an adaptation of a principle decades old. Horizontal compression during photography, combined with de-compression at the time of projection, brought to reality the fact that a potential 2.55:1 screen image can be carried in a near-conventional-size frame area. Twentieth Century-Fox chose a compression factor of 2, and this has remained constant among all other 35mm standard camera wide screen systems.

Lenses of high quality bave been developed both in America and Europe, which eliminate the closeup distortion and astigmatism encountered in many early CinemaScope productions. While the original Bausch & Lomb anamorphosers were accessory

Continued on Next Page

FILM CLIP of Todd-AO 65mm positive printed from a 65mm negative. Regular release prints with sound tracks are on 70mm film as shown in diagram on following page

TECHNICOLOR TECHNIRAMA camera, with horizontal film movement and 2000-ft film magazines, photographs an 35mm negative in manner similar to VistaVision. Anamorphic attachment at front of camera is obscured in this photo.



MITCHELL VISTAVISION camera uses 35mm film which moves right to left at 24 double-frames per second, consuming 180 feet of film per minute, necessitating 2000-ft magazines. Takeup magazine is seen with cover removed; viewfinder is at top of camera.

20TH CENTURY FOX CINEMASCOPE cameras, mounting Bausch & Lomb anamorphic lenses, pioneered single camera ultra-wide screen photography. Before development of the new single unit B&L anamorphic lens, TCF employed supplementary anamaphoser lens in front of regular camera lens.

CINEMATOGRAPHER Charles G Clarke, ASC, with 20th Century-Fox CinemaScope camera on location Note the ultra wide sunshade and matte box, which accommodates the wide screen picture format, also the single-unit Bausch & Lomb anamorphic lens

optics, mounted in front of and focused independently of conventional spherical lenses, more modern "block" lenses, such as the Panatar series, incorporate anamorphic and basic elements in a single unit.

CinemaScope renders highly satisfactory results when exhibited on an average theater screen in proportion to the size of normal format films, but exaggerated enlargements of the CinemaScope image —a practice exhibitors caught onto quickly—results in light loss, excessive graininess, and decreased definition. Consequently, 35mm Cinemascope release prints are limited as a source of entertainment on immense screens. The ultra-wide screen requires larger prints.

Cain in image clarity is obtainable through one or a combination of methods, most significant of which is the use of a large-area negative in original photography. Research carried out by the Eastman Kodak Company revealed that the most noticeable improvement in definition in the 35mm print is obtained at the 2:1 reduction ratio between negative and positive. Paramount and Technicolor first developed VistaVision, in which standard 35mm negative travels horizontally through a specially designed camera to expose an eight-perforation frame. In release printing, this twice-normal area is commonly reduced to the standard 35mm frame and is projected in the conventional manner. A 1.85:1 format projector aperture is recommended and the print definition is good enough to permit 60-foot-wide screenings. For extremely large screen projection, Technicolor has provided double-frame release prints, which carry an image in the original negative position and are projected by horizontal-travel projectors. The aspect ratio in double-frame release print projection is 1.96:1—not a radically wide image, but VistaVision must be defined as a *large* screen system, rather than a strictly *wide* screen system.

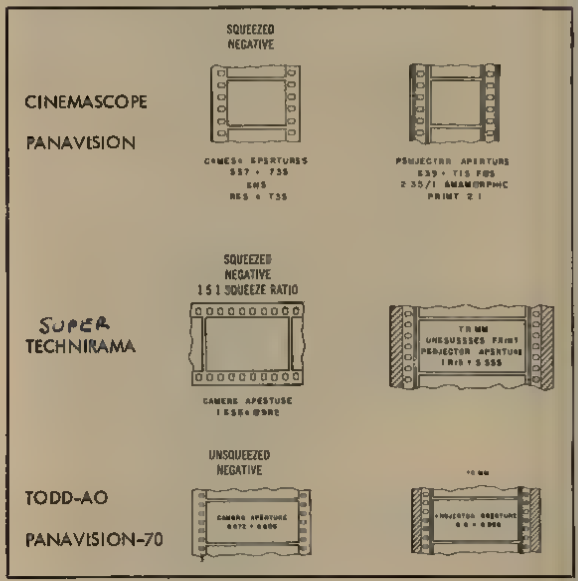
Fox worked along the same lines to improve 35mm CinemaScope prints, and arrived at a 55mm anamorphosed negative system, which was employed in photographing two high-budget productions. From the four-times-normal negative frame secured, either a very good 35mm or better 55mm release print is obtainable. This system has been used only in the two instances mentioned, and then only to derive 35mm prints, and is no longer used.

Other systems further increase definition through use of large-area negatives, which are more frequently printed onto large-area positive stock for exhibition. The three techniques which utilize 65mm and/or 70mm film are Todd-AO, Panavision 70, and Technirama 70. In each case the result is a 70mm print, carrying a positive image of recently-standardized size, and six magnetic sound tracks. The 70mm image is of such high quality that a 100-foot-wide projection is possible without any loss in picture sharpness.

In Todd-AO, a 65mm negative is photographed

Continued on Page 440

THE NEGATIVE FORMATS (left) and release print formats of five currently used ultra wide screen film production systems. Picture area of CinemaScope and Panavision prints is slightly reduced to accommodate the multiple tracks for stereophonic sound. In the Technirama, Todd AO and Panavision 70 systems, the 65mm negative is printed on 70mm film, which provides the necessary additional width to accommodate the multiple sound tracks



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THE ALEKAN-GERARD PROCESS OF COMPOSITE PHOTOGRAPHY

An inexpensive ond compact front-projection process for shooting composite scenes for motion pictures.

By L. F. RIDER

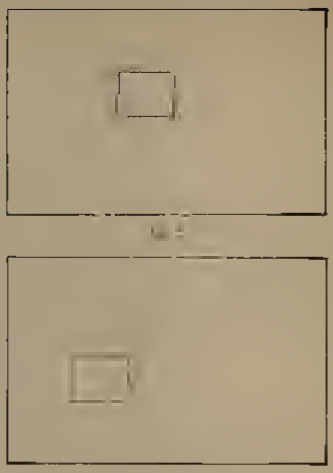

Fig 3

IN OUR April issue, Raymond Fielding described The Scotchlight Process of composite photography, which has proven successful in film work conducted by the Department of Theatre Arts of the University of California at Los Angeles. The following article by L. F. Rider, associated with Rank Kalee, a division of the J. Arthur Rank Organization, London, appeared in the March, 1962, issue of *British Kinematography* and describes a similar process.

Because this article goes into more technical detail and also answers many technical questions about the process which the editor has received since publication of the Fielding article, we are reprinting, with permission of the British Kinematograph Society, a slightly condensed version of Mr. Rider's article. Omitted here are author's references to use of the process in fashion, commercial, and television photography. — EDITOR

IN THIS MODERN AGE of pictures and television, the photographer has a number of technical tricks at his disposal by which he is able to achieve a high degree of realism in the composite picture. They range from simple expedients, such as life-size photo-backings, to rear projection, traveling matte and Schufftan shots, to mention but a few. These processes all have their particular applications and, equally, their particular drawbacks. In the larger studios, rear projection is probably the most used, but to apply it successfully entails a large capital investment in high-precision equipment and considerable studio space. Any attempt to cut down on equipment or space at once results in a drastic deterioration of picture quality and the composite illusion is lost. For these reasons, rear projection is usually ruled out in the smaller studio.

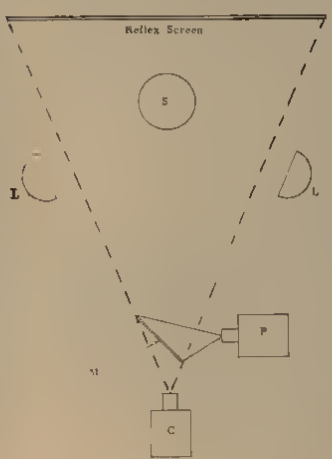

Fig 1

A new system known as the Alekan-Gerard Axial Projection Process†, developed by two French cinematographers, promises to open up a new field for motion picture, television, fashion and industrial photographers.

Essentially a front projection process, it is a happy combination of something old and something new. The old part is the semi-transparent mirror, a logical descendant of the plate glass used in the popular "Pepper's Ghost" illusion of Victorian days. In its present form, using an untarnishable coating of titanium applied by vacuum deposition methods, its efficiency has been improved out of all recognition. The new part of the process is the self collimating or reflex screen whose surface consists of millions of tiny glass beads of high refractive index.

The beaded front-projection screen has been known in the cinema and to the home movie user for many years and it is recognized that it has one particular failing which severely restricts its usefulness. While it is a brilliant reflector, it has the unusual property of returning a high percentage of the projected light along its own axis, straight back to the source. From the cinema point of view, it means that the projectionist sees the brightest picture and, for this reason, the use of this type of screen is confined to long narrow theatres where the audience is contained in a small angle relative to the screen. This odd pattern of reflection seems, on the face of it, to be a complete contravention of the normal laws of reflection. By careful design, it is possible to develop this "fault" to the point where the screen becomes utterly useless in the cinema. It may seem rather an odd aim to pursue, but this "tailoring" of the polar diagram has made possible the Alekan-Gerard Process.

If the projected picture is viewed from its apparent point of origin, which is the front nodal point of the projection lens, then an image of phenomenal brilliance will be seen. Alternatively, a picture of normal brilliance can similarly be presented by the use of a very low power light source. The vital factor here, of course, is the enormous apparent gain of the screen as seen from the point of origin of the light. The schematic diagram (Fig. 1) shows the method used for the Alekan-Gerard Process.

Continued on Page 430

† *British Patent No. 768 394*

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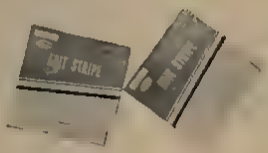

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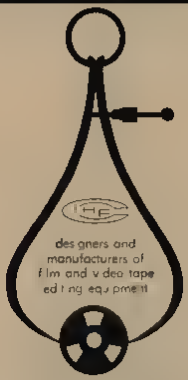

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THE ALEKAN-GERARD COMPOSITE PROCESS

Continued from Page 428

The camera C looks at the reflex screen through the semi-transparent mirror M, which is disposed at 45° to the optical axis. From one side, the projector P throws a background image on the screen, using the first-surface reflection from the mirror. In this set-up the projected beam emerges to all intents and purposes, from the camera lens or, to put it another way, the camera lens is axially coincident with the virtual image of the projector lens, as seen in the mirror. It is essential that the coincidence relates to the front nodal points of the respective lenses rather than to their front elements.

Securing Extreme Accuracy

The accuracy of alignment between these front nodal points, both co-axially and along-axis, is of paramount importance. There is, happily, a simple method of detecting and correcting errors. A piece of the beaded screen material about nine inches square should be mounted on a thin, stiff board of the same size which, in turn, is fixed to the end of a rod of convenient length. This device is used as a probe, to be inserted into the camera field approximately where the foreground subject is to be located. If the optical alignment is correct, then the probe target, as seen through the camera, will merge almost indistinguishably into the background and will be free from shadow fringing. Should an all-round shadow fringe be seen, then either the camera is too far back along the common axis, or the projector is too near the mirror. (See Fig 2). Should the *camera* be too far *forward*, then a fringe will be seen on that edge of the target which is nearest the optical axis, but this effect is only observed when the target is wholly off-axis. The appearance of the target under these conditions is shown in Fig 3.

Essential Requirements

In order to retain a correct perspective relationship between the subject and background, certain fundamental principles must be observed, exactly as in rear projection. Theoretically, lenses of the same focal length should be used in the studio camera and projector and also in the field camera used for shooting the background plate. Some license is permitted in respect of the last item when a distant background is being used, apparently far behind the subject.

In the case of motion picture or television application, the picture has to fill a definite frame size and any failure to fill the frame completely will be wholly unacceptable. This condition may arise from manufacturing between lenses of nominally the same focal length or from small errors in optical alignment of the set-up. As a safeguard against this circumstance, the focal length of the projector lens should be a little shorter than that of the camera lens in order to produce a slightly oversize background. The difference in focal length should not be greater than about 10 per cent or the perspective continuity between subject and background will be spoiled.

Special Effects

By careful attention to perspective matching some interesting effects can be achieved. For instance, it is quite possible for a person who is actually part of the projected background to be apparently nearer the camera than is the studio subject.

Other trick effects may be realized without great difficulty. If a street scene contains some static object, such as a pillar box or parked car, then that object may be picked up on an appropriately shaped cut-out screen mounted on hardboard and located just in front of the main screen. The subject may then walk behind the selected object and thus appear to be participating in the projected scene,

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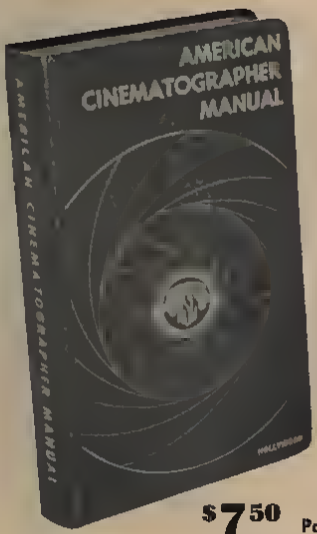

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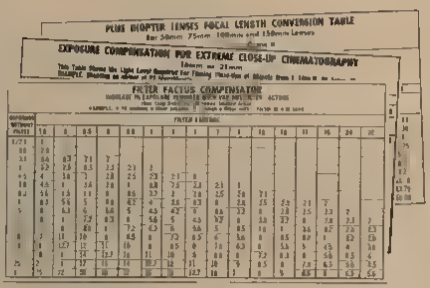

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For optimum efficiency of the system as a whole, the mirror should theoretically give 50 per cent transmission and 50 per cent reflection, presupposing that there are no losses in the glass itself. In practice, some 45 per cent transmission and 43 per cent reflection are attainable.

The camera and projector lenses being effectively coincident under the stated condition, the camera can now see a good bright background image on the screen, free from "hot spot".

At this stage we introduce the subject S. (Fig. 1) somewhere in front of the screen. By reason of the axial coincidence, the shadow cast by the subject on the screen will, from the camera's point of view, be exactly masked by the subject himself. Any tendency for a dark shadow fringe to appear around the subject indicates some degree of misalignment which may be readily corrected by adjustment of the mutual relationship between camera and projector.

Subject Lighting

It is obvious that, since the subject must unavoidably cast a shadow on the screen, some of the background light will be intercepted by the subject. What, then, if he is wearing white clothing? Will not part of the background be seen to be projected thereon? The answer is yes, until we light the subject. It should be remembered that the screen, by reason of its phenomenally high luminance gain, provides a good, bright picture from only a low powered projection light source. So brilliant is the reflectivity that a piece of clean white paper held against the screen and viewed through the camera appears to be relatively quite black.

Fig. 4

To complete our composite picture, it now remains only to apply the subject illumination from lamps L. (Fig. 1). Some of this light must inevitably fall on the screen as spill light, but it will, in general, be reflected back to the lamps themselves rather than to the camera lens. The property is inherent in the reflex screen. Provided the lamps are situated reasonably well away from the common optical axis, a surprising quantity of spill light can fall on the screen without visibly degrading the finished picture. The intensity of subject lighting required in the normal ranges of photographic exposure is such that any background image projected on the subject is completely washed out.

Nature of the New Screen Surface

The precise nature of the screen has, so far, been only sketchily indicated and it would be well to discuss it in fuller detail.

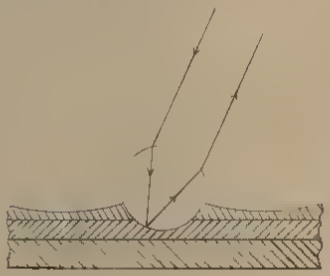

Fig. 5

Reference was made earlier to beaded screens as used in the cinema and for home movies. These screens are usually made of cotton fabric, one surface of which is treated with an opaque white filler. The filled surface is coated with a substantially colorless adhesive into which are imbedded millions of small spherical beads of crown glass having a refractive index of about 1.5. The tendency for the projected light to be returned to the source has already been remarked.

If, instead of using crown glass beads, we now use beads of flint glass with rare earth additives, having a refractive index of the order of 1.9, then the reflective properties of the screen are drastically altered and a very much higher percentage of the total light is returned to the source. In Fig. 4 is illustrated an enlarged section of a type of material which may be used for Alekan-Gerard Process photography.

Layer 1 is the base or support which may be of fabric or plastic. Layer 2 is a transparent, synthetic resin containing aluminum platelets or a similar reflective medium, and into this layer are imbedded the glass beads.

3 of high refractive index. Layer 4 is a further resin containing a black pigment and it fulfils the dual functions of (a) providing further support to the beads and (b) obscuring the reflective layer 2, so that it cannot be seen between the beads. The only effective parts of the reflective layer are those parts which are actually in contact with the backs of the individual beads.

Fig. 5 illustrates a single hypothetical light ray entering and leaving a single bead. It shows that the ray is bent into the bead on entry, is reflected from the far inner surface and is bent again to emerge finally parallel to the incident ray. The diameter of the beads being only of the order of 0.005 inches the incident and emergent rays may be considered to occupy effectively the same position in space. The reflective aluminum layer assists the return of such light as may tend to break through the far inner surface of the bead.

The above description is essentially fundamental and lends itself to many variations concerned with the possible refractive index and size of the bead, the use of a clear spacing layer interposed between head and reflector, etc.

In its simple form, the screen material is akin to that used for reflective road signs, although in that particular application the characteristic of the material is usually degraded in order to widen the effective angle of the material to compensate for the axial displacement between car headlamp beams and the driver's line of sight. Further development work is in hand and there is promise of an excellent material of extremely high efficiency which will shortly be marketed.

Size of Screens

It is unlikely that it will ever be practicable to coat large seamless screens in this manner and the material may, therefore, be expected to

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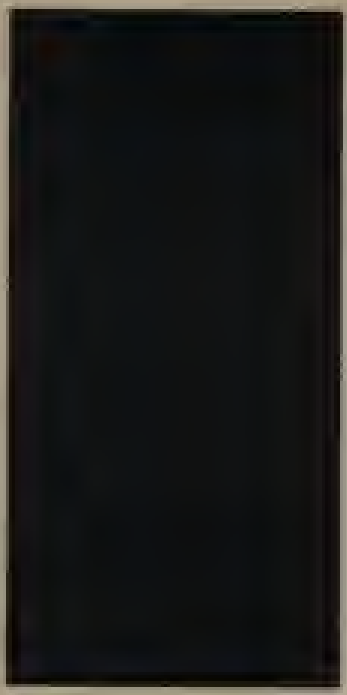

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be made available in rolls of restricted width. Fortunately, assembly of a large screen is not difficult All that is needed is a plywood or hardboard "flat" of suitable size on which the widths of material may be secured with latex adhesive. A butt join has been found to be quite satisfactory. provided that a half-inch strip of the material is cemented over it Such joins are virtually invisible in the finished picture. Irregularities in the flatness of the mounting surface are of little consequence and it has been known for the material to be cemented directly on the walls of a large studio with success

Materials from different sources have been tested in order to assess their suitability for use in reflex screens and these tests have served to show that it is quite possible to make screens with a neutral reflective characteristic which are suitable for color photography

ft now remains to discuss some of the pros and cons of the process in its various fields of application

Motion Picture Applications

It is not anticipated that the Alekan Gerard Process will replace rear projection among the facilities of the larger motion picture studios Rear projection is already well established and large sums of money have been invested in the provision of elaborate apparatus. For the smaller studio, lacking either the finance or physical space for rear projection, the Alekan-Gerard Process offers a most useful facility at a low price and occupies practically no extra space. It offers also the fundamental advantage of an evenly-lit background free from "hot spot" and very insensitive to spill light. On the other hand, where the background is, itself, a motion picture film. the noise of a projector close to the camera will prevent the shooting of lip sync sound so that post-synchronizing techniques must be used An experimental blimped projector under development shows good promise. Fitted with a Mitchell-type pull-down unit and mounted in a standard camera blimp, it is powered by a pulsed light source.

Tracking of the camera (and background!) appears to be out of the question unless elaborate and continuous compensation be made for focal length and aperture of the projector lens. On the whole, the Alekan Gerard Process appears to be best suited to a static camera set-up.

Motion picture tests made with a single-bead 160-ampere process projector have confirmed the feasibility of using a 50-ft. background screen. On the other hand, small scale work has been successfully carried out with a 500 watt incandescent projection lamp

Conclusion

To sum up, this process offers a system of front projection photography in a manner which is relatively cheap to install costs next to nothing to operate and makes virtually no demands on studio space. The resulting background image is evenly lit from a small source and presents no "hot-spot" problems.

It provides a useful additional facility to add to the resources of even the largest film studio while, at the same time, it is particularly attractive to the small establishment making television commercials. Its application to television or photo-studio practice will materially extend the amenities thereof at low cost. ■

TRICKY FILMING

Continued from Page 417

method for storage of food 100 years from now, and the preparation and serving of food. These actions had to be performed automatically, and shown clearly within the limited amount of footage alloted to this sequence

The method of food storage was depicted with a large wall-like compartment, partioned into drawers—one for each meal of each day A checkerboard black-taped design created the effect of 21 separate small compartments, with individual knobs to open each of the meal compartments for food storage. Actually, only one of the compartments was a working model, hinged to open When filmed, a concealed photoflood lamp at the rear was turned on simultaneously as the door was opened by the housewife. Two sections of clear plastic tubing 8 inches in diameter permitted us to film food rolling from the storage compartment into a device which we lettered Micro-Cooker At the proper moment, cooked food was substituted and shown emerging from the micro cooker onto the automatic traveling cart

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included within one camera set-up we decided to tie the theme of our picture with the Fair with a Futuristic scene back of a picture window. The backdrop view was painted by in plant illustrators. Published photographs of the Seattle's World's Fair Space Needle provided the motif for a central building, with monorail trains speeding to modernistic structures in the city background. Frosted acetate in 48" width rolls was stretched across the 'solid' portions on each side of the picture window and aluminum paint provided a metallic framing around it.

All these settings and props had to be conceived and constructed before shooting began. Many of the complicated appliance movements and operations were rehearsed half a dozen times before the action was acceptable for photography.

For the presentation of this motion picture, Philco — a manufacturer of television receivers, among other things — elected to exhibit the film through closed-circuit TV on modern receivers located within the Philco exhibit. Two specially-designed continuous loop projectors are set up behind the exhibit, concealed from view of Fair visitors. The projected image of the film is carefully focused upon the image orthicon tube of a small Philco closed-cir-

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unit TV camera (as shown in accompanying photo) which, through its electronic system, feeds the picture to the several TV receivers.

So the picture presentation will have an identifiable beginning and end, there is a 15 second interval when the screens go momentarily dark — result of the length of black leader separating the beginning and end of the continuous loop of film, as described earlier.

An innovation is the flashing on the TV receivers during this 15 second interval of a live-action view of the exhibit audience actually watching the show, achieved by a hidden TV camera which is automatically triggered to pickup status whenever the film's black leader passes the projector gate. At the end of the 15-second interval, the hidden TV camera is shut off and the film show resumed.

While the intent of this capsule film production is to depict probable modes of living decades hence, thanks to the wonders of electronics and the space age, no little amount of imagination and ingenuity was involved in its conception and production. The result is not only a credit to our production crew and facilities, but is just another example of the "impossible" films which imaginative in plant film makers make possible almost every day.

PRODUCTION PROCEDURES FOR ANIMATED COMMERCIALS

Continued from Page 415

As we do in approaching every commercial, we first examined the main sales points. Our story department was then turned loose on those points. Their instructions were to keep the message simple and entertaining.

A rough story board was then developed, which called for a character air pilot, an off-beat airplane and several optical effects created by using still pictures of actual Navy planes and aircraft equipment. The layout was timed to fill the 60 second format.

This "rough" story board was then presented to our director in a story conference where final modifications were suggested, before creating a presentation board to show the sponsor. The presentation board was, in essence, a polished "rough" story board—with the story line in caption form—to demonstrate the commercial, what it would look like, and say.

Where the nature of a commercial and the product lend themselves to a characterization, like the Navy pilot and off-beat airplane, our animation department develops model character sheets, which give the agency or sponsor opportunity to study the proposed characterization. In this way they can be sure that they have a distinctive character that will make their point and still not be offensive to anyone in the audience.

Format for the presentation of story boards varies from sponsor to sponsor and from agency to agency. Generally story boards are a series of drawings made on drawing paper and arranged in sequence on a large panel. In the case of the Navy commercial, where optical effects were being considered, the photographs which were to be used were scaled down to proportion with the rest of the presentation board. Since the commercial was to be produced in color, the presentation board was also in color.

Once the presentation board was accepted by the Navy, we went to work. Production of the commercial was turned over to our director who initiated action in several departments of the studio.

The design and layout department began preparing backgrounds, scene cuts, camera angle instructions and character models. At the same time, the music director prepared a score. This was recorded on a magnetic track. Meanwhile, the director cast voices and arranged to record a narrative

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magnetic sound track. When completed, the two sound tracks were turned over to the editing department which transferred the music and narration to timing directions on exposure sheets. At this stage of production, each sound was carefully evaluated to determine how many frames it would require on film.

With the layouts, character models and exposure sheets completed, the director then analyzed the timing and prepared timing sheets that would show the animators step by step what had to be done. Instructions for scene cuts and pose drawings supplemented these instructions.

The animators' rough drawings were turned over to the camera department where they were photographed as scenes were completed. Eastman Plus-X Reversal Film, Type 7276 was used, and photography done with an Acme animation camera. Since 7276 is a reversal film, the camera original was used as a work print.

The work print and sound track were then synchronized and reviewed on a Moviola. During this review, decisions for final changes and modifications were made and special consideration given to such minute details as how long each note in the score and each pose should be held.

From this point, the job was turned over to the art department, where finished backgrounds were drawn for each scene and separate cels painted for each character and movement.

When color is called for, as in this Naval Air Reserve commercial, there are two technical pitfalls we avoid: 1. Color flash — which occurs when color density for the same image varies from one cel to the next. This shows up as a flash on the screen. 2. Melding of colors on black-and-white sets because grays mesh where colors contrasted.

The availability today of quality color films and the excellent support of film laboratories in Hollywood make it possible for us to fully control color as long as we do our job in the art department.

One of the first lessons we learned in the production of color commercials was that when a number of overlapping cels are used in one scene, the color on the top cel, and the same shade on each succeeding cel down will not show up the same.

Trial and error tests have taught us how we must change the shade of each color according to its cel posi-

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tion on the animation stand. Darker shades used on the top cel are lightened as we go down in cel position. The acetate diffusion compensates for the color difference.

In order to assure uniformity, our paint bottles are labeled according to cel level as well as color. In a scene where a full compliment of cels isn't necessary, we use blank cels to maintain uniformity. In this manner, the art department may provide as many as 16 scenes using between 1,200 and 1,400 cels for a 60-second commercial. From the art department, the Navy commercial was routed to the camera department, where production was completed.

We used Ektachrome Commercial Film, Type 7255, our standard for 16mm color production because of its ability to capture true color and maintain contrast.

The camera original was delivered to Hollywood Film Enterprises, where the initial answer print was made from an Eastman Color Internegative, Type 7270, printed directly from the original.

Actually, most of our production of animated commercials is with 35mm film. Standard procedure for 35mm color production is to shoot with Eastman Color Negative Film, Type 5250. Processing of this material is done for us by General Film Laboratories.

There is plenty of room for flexibility in the production of any commercial. The original film used and the print stock chosen usually depend upon the sponsor's ultimate release plans.

A 60-second commercial in color will probably cost about 20 to 25 per cent more than in black-and-white. The determining factor is usually the increased impact obtained from the use of color. Our feeling is that as the number of color television shows increase, the number of color animated commercials will similarly increase.

Few sponsors who go to the expense of paying for the special impact of a color show will scrimp on the cost of producing a color commercial.

On the other hand, we don't expect to see much color animation work done in commercials unless they are to supplement color shows. The single exception would seem to be public service commercials, like the Navy job described here.

The cost theme can be carried even further to compare "live-action" and animation, without coming up with any significant conclusion. Cost comparisons are elusive because there is a wide range in animated commercial costs. Similarly, "live-action" costs also vary widely. The determining factor is: "Does animation fit the character of the product?"

In this article, we have considered "full" animation, where at least one character is continually moving throughout the action to attain complete change of attitude and lip synchronization. This is the most likely form of animation for commercial production. However, cost corners can be cut through the use of either limited animation or the filmograph.

The former is characterized by camera moves, cycle animation and pop-on's created by the same methods but utilizing sliding cels and still drawings. These techniques may be seen in many of the animated features produced for juvenile audiences on television. While the objectives differ, the theories are the same.

In other words, there is a lot of latitude in the selection of the specific techniques for any given animation presentation—a wide range of possibilities to adapt the animated product to the sales job at hand and the budget available. ■

"RIDE THE HIGH COUNTRY"

Continued from Page 411

counter various hardships and menaces, the youth finds love personified in a freckle-faced tomboy type girl; and the whole thing ends in the most highly stylized gunfight since "High Noon."

For the roaring mining camp location, the focal point of the film's action, the Bronson Canyon area of Griffith Park in Hollywood was chosen. This stretch of terrain runs about a city block in length and has steep rock walls rising on either side resembling a rock quarry. Along the walls of this rocky corridor prospectors' tents were set up, and in the diminishing extremity of the canyon the studio constructed the exterior of the combination saloon and "pleasure palace," inside which some highly dramatic action was staged.

In order to create an authentic visual link with the previously-shot Mammoth footage, it was decided that patches of snow should cling to the crevices of the canyon and the folds

of the tents Ordinarily, fallen snow is simulated by drifting coarsely granulated gypsum where needed. In this case, it was felt that the effect could be created more quickly, more easily and with a minimum of mess if liquid soap under pressure were used instead. The foam produced in this way clung realistically to the areas where applied, remained fresh for approximately twenty minutes, and left no messy residue to mar the landscape

The main photographic problem in the canyon arose during filming of day-for-night sequences

"It is a fairly common misconception that day-for-night scenes are shot most successfully in dull flat light." Ballard comments. "Actually, a certain contrast is necessary in order to give definition to the elements in the scene On the other hand, if such scenes are shot in brilliant front sunlight, any artificial light effects, such as street lamps or lighted windows, included in the scene to enhance the feeling of night will be "washed out" The ideal condition is a strong natural cross-light, with the camera shooting toward the shadow side of the subject. Front light must be kept off the background so that artificial light effects can burn through strongly All cameramen prefer to shoot night scenes actually at night—but sometimes the shooting schedule does not permit this. Also, there is a convention that real night scenes invariably are too dark to show up well on drive-in theater screens"

One of the most challenging day-for-night problems in the picture was that involved in a sequence where the men are first shown playing a scene outside a ranch house and then proceed inside a barn to bed down for the night The interior, in this case, was not a studio set, but an actual barn The photography was planned so that sunlight streaming in through the barn door would appear on the screen as moonlight Ballard threw shadows across the figures as they got inside and enhanced the night effect through the use of a few well-placed incandescent units. In shooting day for-night exteriors, scenes are usually underexposed approximately two stops However, no blue filters are used over the lens as this would limit flexibility in editing the sequence. Cold light, characteristic of night, is added later by the laboratory through the use of appropriate filters in the printer. thus permitting a much more precise control.

The photographic excellence of "Ride the High Country" is not confined entirely to the striking outdoor sequences which make up the bulk of the footage In his lighting of the interior sequences Ballard displays daring and originality One outstanding scene, for example, takes place inside a ranchhouse and involves a clash of temperament between a girl and her straight laced, Bible beating father. The girl enters the living room where the father, full of righteous wrath, denounces her as sinful He follows her as she walks around the table and then strikes her, knocking her to the floor. As she rises, the father, overcome with remorse, falls to his knees and begs her forgiveness

This lengthy dramatic scene was photographed entirely by the light of a single set lamp beamed through the door of an adjacent bedroom The figures are completely backlighted, with no fill-light used. Such lighting, especially in color photography, is rarely employed in Hollywood Studios where the cliche' still persists that the actors faces must be visible at all times. In this case, however, the sequence gains great dramatic impact from the fact that all one sees on the screen is the clash of forms in opposition while the biting dialogue explodes in a fury of emotion

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Typical of trend toward lightweight, portable incandescent set lighting units is the Grovelite Senior, pictured above Equipped with generous barn doors, unit is designed to use five PAR-type bulbs Use of colorflector—an accessory—permits utilizing other standard light bulbs A feature is multiple-position switch built into unit which permits selective switching on and off of two three or all five lamps. Product is one of many such lighting units produced by ColorTran Industries, Inc., Burbank.

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In another scene that takes place within the saloon and its adjacent sleeping rooms, Ballard employed an emphatic transition of contrasting lighting styles to shift rapidly from comedy to dramatic violence. The opening action in the scene is in the nature of a celebration marking the wedding of the girl and the long absent suitor whom she has journeyed to Coarse Gold to join. In the midst of the roistering the groom picks up his bride, carries her to a recently vacated nuptial chamber in the rear of the establishment, and dumps her purposefully on the bed. He leaves the room for a moment and then his three lecherously drooling, half-witted brothers lurch into the bedroom and move toward the girl. The groom reappears in time to forcibly dissuade the intruders.

In approaching this sequence photographically Ballard lit the barroom in a relatively high-key to enhance the comic values, while still preserving a mellow "gaslight" quality that is not only faithful to source but complements the garish luxury of the set, with its red "velvet" walls, and the flamboyantly colorful costumes of the ladies-of-the-evening and their 300-lb. madam.

In the corridor leading from the barroom to the bedroom the lighting pattern gradually changes to low-key, with well-placed shadows suggesting impending danger. Then, as the groom dumps his bride and turns the lights down low, black shadows seem to leap into the corners and crouch there like beasts of prey. This symbolism is forcefully personified by the three evil brothers who barge into the room, "chopped" by low-placed cross-lights that heighten their sinister aspects. The total effect is most forceful and adds up to a perfect example of creative lighting precisely controlled to enhance a violent change in dramatic mood.

Despite the many weather and location problems that plagued the production, shooting of the picture was completed within its 27-day schedule. Ballard credits much of this accomplishment to two elements that directly affected his work as cinematographer. First, he was assigned to the picture almost a month prior to the start of shooting and thus was able to work closely with the director, art director, and wardrobe designer to pre-plan a creative visual approach to the story. And secondly, he was working with Sam Peckinpah, a director who, though relatively new to the motion picture medium, had a fine feeling for visual values and was very much open to suggestion in terms of the photographic treatment.

"You can't get a good picture photographically without a director who wants and appreciates good photography," Ballard comments. "Sam Peckinpah was willing to try anything that would sharpen the dramatic values of the story. Also, when a cinematographer has opportunity to sit in on the planning of a picture and is consulted on sets and wardrobe, he just naturally takes more than ordinary interest in the production. He feels that the picture is really his." ■

ULTRA-WIDE SCREEN SYSTEMS

Continued from Page 425

with spherical optics. Whereas the first Todd-AO cameras were built to specifications in Europe, 65mm Mitchells have since been used to photograph the majority of seven major productions in this format. Todd-AO specifications as to camera and projector aperture and sound track placement served as a model for the two similar systems to follow.

Lenses were designed by the American Optical Company and cover fields of up to 128°. The considerable content of the Todd-AO image, when projected onto a deeply curved screen, renders a 2.2:1 result on the order of Cinerama. Somewhat severe barreling and distortion, which were evident in early productions, have been alleviated by a subsequent series of lens improvements and equipment redesign under the title of "The Todd Process."

Panavision 70 employs 65mm negative film and exposes a frame of about the same area as Todd-AO, as mentioned above. There is a choice between spherical optics, to yield a format of 2.2.1, and the addition of a slight anamorphic factor to yield a one-third wider, 2.7:1 format. The latter is officially called Ultra-Panavision, and since M-G-M co-developed the system with Panavision. Incor-

porated it is also frequently denoted as M-G-M Camera 65. In either case, the negative is contact printed onto 70mm for release. The first films shot in Panavision 70 were photographed with specially built 65mm Mitchells similar to the Mitchell Standard, which were housed in massive 300-lb blimps; however, Panavision has since designed and built several highly versatile cameras and a series of exceptionally sharp lenses for use with the system.

Technirama utilizes a 35mm negative identical to VistaVision in size and format. However, somewhat more information is squeezed into the negative through a 1.5 anamorphic compression. In most cases, CinemaScope-type 35mm extractions are made from the negative through optical reduction and an additional 1.33 anamorphic compression. Release prints made in this manner are far superior to those made from 35mm CinemaScope negative. Several films photographed in Technirama have been given 70mm release, and this is done by optical printing involving deanamorphosing the double-frame negative and printing directly onto the 70mm frame area. The Technirama camera is a conversion of Technicolor's old three-strip color camera. VistaVision cameras can also be modified for Technirama photography.

Amid all this technical name-calling is the fact that these systems are remarkably versatile and interchangeable. According to W. E. Pohl, technical director of Technicolor, "It is possible to make prints from any of these negatives in any of the commonly used positive formats. In moving from one format to another, it is possible to employ either spherical enlargement or reduction, coupled with either anamorphosing or deanamorphosing of the image. An example is the printing onto 70mm of a 55mm CinemaScope negative for a recent exhibition of Fox's "The King and I." The coupling here of vertical reduction and horizontal expansion was called for since the theater involved was equipped for 70mm projection. The resulting presentation system was called "Grandeur 70"—Grandeur being the title of Fox Studios' earlier adventure into wide-screen film production.

This provision accounts for the comparatively fast acceptance of wide film, and wide screen in general, as a practical medium of film exhibition. Though less than 1% of the nation's theaters are presently equipped to handle a 70mm release, 35mm CinemaScope prints as well as flat conventional format prints are obtainable and guarantee any production exhibition anywhere.

The equipment involved in all these systems is obtainable by rental from the appropriate organizations. Purchase has been limited to a few large studios such as M-G-M and Paramount, who have either co-developed the systems or have sufficient interest to consider ownership profitable. A 65mm Mitchell camera takes five-to-six months to build and can only be had on special order, for around thirty-five-thousand dollars, with accessories, less lenses. Raw film stock required is supplied by Eastman Kodak Company on special order through W. J. German, Incorporated. Eastman will cut and perforate minimum quantities of 20,000 feet of any available negative or positive material for use with any system. Costs on wide area film vary according to quantity and emulsion involved, but run about double the cost of 35mm. At present Technicolor is the sole organization fully equipped to perform lab work on the large negative processes mentioned here. M-G-M also has considerable lab facilities, and DeLuxe is presently outfitting a lab in New York to handle 65mm and 70mm film.

The ultra-wide-screen is presently a field for the well-endowed film producer only. The techniques involved have been perfected and complete facilities now exist, whereas a decade ago they did not. And available to the industry is the highest technical achievement in cinematography. •

"CALIGARI" TO "CALIGARI"

Continued from Page 422

frantic dash toward the rear gate of the estate she is overtaken by a veritable Hound of the Baskervilles and only narrowly escapes the beast.

She now realizes that she will have to win her freedom from Caligari by calling his bluff. She goes to his study and offers herself to him, taking off most of her clothes and flaunts her sexuality in his face. When he fails to respond, she screams at him the accusation that he is impotent. In a mocking gesture he tears off his beard

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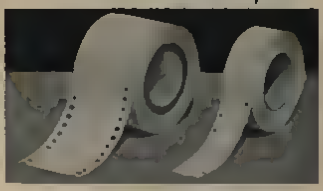

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and wig She is horrified to see the features of Paul, the benevolent doctor she has trusted, emerge from the disguise Terrified, she runs from his office and finds herself rushing down an interminable nightmarish corridor, finally plunging through a door into a pit of chaos

As she finally comes whirling up out of this confused vortex, at first we see everything from her viewpoint. The mansion has lost its exotic quality. A young woman whom she had taken to be Caligari's mistress is revealed as his nurse, and other "house guests", patients in his private mental sanitarium There is no Caligari—only Paul, the patient, kindly psychiatrist. He explains that she has had a nervous breakdown (symbolized by the break down of her car) and is now well enough to go home We see that Jane is not young, as in her hallucination, but an elderly woman. As her grown son comes to pick her up in his car we recognize him as Mark, the young man to whom she was romantically attracted. They drive out of the grounds of the sanitarium as the camera pans up to show Paul on his balcony watching them leave

Purists may carp at this wide departure from the original story line. In justification—if such is needed—it should be pointed out that Producer-director Roger Kay never intended the new version to be a literal remake of the old—but rather a predominantly original work geared freshly to modern audiences but springboarded by basic structural references to the German "Caligari" His aim was not to produce a horror film reeking with homicidal violence—but a suspense drama in which a patient in the throes of mental breakdown leads a suspense-stimulated audience through the labyrinths of her confused mind Just how successful the suspense element is will depend of course, on the sophistication of the individual viewer Those grounded in psychology will immediately spot a veritable shower of Freudian symbols, while the less worldly should remain pleasantly puzzled up until the very end.

Be that as it may, the most valid basis of comparison between the two versions of the film is not one of discrepancies in story line, but rather of the respective cinematic techniques used to translate the story elements retained in common by both versions into visual terms (hallucination of the protagonist, duality of the antagonist)

The events which resulted in the original "Caligari's" emergence as a triumph of expressionistic design were, if legend holds true, quite accidental and motivated strictly by the demands of practical necessity. Erich Pommer himself relates in his memoirs that in Germany during that period, electrical current was limited by strict quota. At the moment that "Caligari" was scheduled to go before the camera the studio had already used up its quota for that month Realizing there would not be sufficient current to achieve any sort of artistic lighting in the large sets that were planned, co-author Janowitz desparately suggested. "Why not *paint* light and shadows on the sets for this film?"

Pommer immediately rejected this inspiration with the pronouncement: "It is impossible to put fantastic, unreal flat sets behind real, solid people" Nevertheless, he reluctantly agreed to permit a test to be shot against bizarre flats designed by three expressionist painters: Hermann Warm, Walter Roehrig and Walter Rieman. After viewing the test, Pommer, still skeptical but lacking an alternative, grudgingly agreed to film the production against expressionistic settings.

While the sheer novelty of the film's decor prompted certain critics of the time to hail it as "the first truly creative use of the cinema," its startling effects were, in actuality, transplanted almost directly from the stage. The film's designers had envisioned a new screen dimension that would convey "meaning beyond reality" through the use of studied distortion. The total effect, however, could scarcely have been more blatantly theatrical and stage-bound Towns, buildings, walls and landscapes were expressed in stylized complexities of jagged angles, unnatural shadows, sharply pointed forms, diagonal chimneys, rumpled rooftops and vaguely abstract symbols —all roughly daubed onto backdrops and set pieces arranged in forced perspectives. Nor were the effects consistent. At times they verged so close to realism as to become almost literal —while, at other times, they were so far out as to offer scant relationship, even in hallucinatory terms, with anything recognizable in life itself In an effort to harmonize the players with the grotesque backgrounds, the actors' movements, wardrobes and makeup

Continued on Page 444

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"CALIGARI" TO "CALIGARI"

Continued from Page 442

were stylized to an almost ludicrous degree

The result, while clinically interesting, did not achieve the hoped-for amalgam of expressionist painting and cinema calculated to result in a totally new and individual art form A fundamental reason for this failure is the fact that the camera, far from being used creatively, did not itself participate in furthering the expressionistic illusion Despite the use of occasional closeups and a few tracking shots, the camera remained essentially remote—an objective machine methodically recording a stage play Because the artisans creating the film relied solely on stylized settings and props to gain their effects, ignoring the potential of the camera to exaggerate and distort imaginatively in its own special way, "Caligari" emerged merely as a self-conscious novelty rather than a catalyst destined to revolutionize the art of the cinema. Though immediately imitated by several other German films riding the crest of the abortive new wave, the expressionistic approach never became a fixture of film technique

In sharp contrast, Robert L Lippert's modern version of "The Cabinet of Caligari" employs the camera as a psychologically creative instrument lending visual credence to the warped viewpoint of a schizophrenic moving within the framework of her own distorted reality Disdaining the previous version's prolific use of obviously expressionistic devices, and avoiding also the overtly Dali esque sybolism of the surrealistic dream sequence in Hitchcock's "Spellbound," the film creates a subtle aura of fantasy—real enough to be convincing as a factual framework of the action, but off-beat enough to sustain suspense up to the final scene This delicate balance of visual effect is mainly a result of the combined artistry of Director of Photography John Russell, and Art Director Serge Krizman

Russell is no stranger to mood photography His brooding camerawork in Orson Welles' "Macbeth" is still regarded a classic in low-key cinematography. More recently, his incisive use of light and camera greatly enhanced the illusion of almost tangible horror that suffused Alfred Hitchcock's "Psycho." In approaching "Caligari" he was confronted with a much more subtle challenge—that of maintaining an illusion of reality while at the same time implying that something very strange was taking place just beneath the visible surface of the action

"From the very first scene in the film, Caligari himself had to be represented as an enigma—though not, at first, necessarily a sinister figure." Russell points out "As the action progresses, however, he and the elements surrounding him become progressively more weird and threatening The object was to keep the audience wondering without going garishly unreal Particularly, in the sequences taking place in Caligari's study, I tried to make the lighting and camera angles grow more startling as the dramatic implications became more stark Since this was a gradual process, I attempted to make the visual treatment increasingly dramatic while always leaving myself someplace to go."

Russell's photographic delineation of the actor playing the dual role of Caligari and Paul required a sharp contrast in lighting styles, not only for dramatic effect, but also to keep the audience from realizing that the same actor was playing both roles As Paul, the actor was illuminated with more or-less conventional front light that softened his face and emphasized the kindliness of his expressions The Caligari character, in direct opposition was almost always lighted by a highly placed key source that accentuated the angular planes of his face Caligari is often shown with his features in deep shadow, a sharp back-light rimming his head In the film's climactic sequences he is illuminated solely by a single key light placed directly overhead, with the eye sockets allowed to go solidly black to produce a death's head effect

The entire action of the film takes place within a huge studio set encompassing the grounds of the estate, the exterior of the mansion and its tri-level interior This striking background was a masterpiece of contemporary design which offered rich possibilities for dramatic camera angles On the other hand, the fact that the set filled almost one entire sound stage, wall to wall, presented difficulties in positioning the camera for establishing long shots Through the use of a 25mm wide angle CinemaScope lens, developed at 20th Century-Fox for experimental purposes, and by framing his shots with tree branches and other foreground objects Russell managed to give exteriors of the mansion and grounds a realistic outdoor scope At the opposite extreme, compositionally, are the startling extreme closeups (a telephone dial a tiny music box, the mouth of a character filling the entire screen) which were achieved by mounting auxiliary lens elements in front of the Cinemascope lenses, and working the camera only a foot from the subject

An interesting photographic technique was used in the sequence where Jane imagines that she sees another patient being brutally beaten for trying to help her escape. A motion picture scene was first filmed showing an attendant striking the woman with a cane. Then the entire sequence was rephotographed in a series of progressive still photographs taken with a Rolleiflex at slow speeds to accentuate the blur of movement Selected steps in the action were then enlarged to 18 inches square and tilted at appropriate angles for cropping by the motion picture camera. The resultant cuts edited in order to the proper pace, produced a shockingly disjointed impression of the violent scene as it might have appeared to the disturbed patient.

Russell employed subjective camera techniques effectively at several key points in the action In one such sequence, Jane having been drugged pitches headlong down the stairs into the arms of attendants who carry her to her room and place her on the bed Here a hand-held camera simulates her point of view, flips up to show the chandelier as she falls, then peers up into the faces of the attendants as they carry her in and place her on the bed —a sequence uniquely photographed by the camera operator as he is carried by attendants in a similar manner

In the final sequence, after Jane has regained her sanity, the camera again adopts the subjective viewpoint—moving into the doctor's office, sitting down while Jane exchanges dialogue with him, getting up, moving out of the office, down the stairs and along the corridor to her room This sequence, actually consisting of several cuts, was photographed with the camera on a boom, the separate scenes later being artfully edited to give the effect of continuous movement.

The climactic hallucination sequence, in which Jane flees down an endless angular corridor, presented lighting problems that challenged cinemato

grapher Russell and his gaffer, George Merhoff. The effect on the screen is that of the girl alternately running, as the corridor remains stationary around her—and standing still as the walls of the corridor go streaking past her on both sides. To get a kaleidoscopic effect of lights flashing on the girl in flight Russell rigged what he calls his "Rube Goldberg contraption," utilizing more than 30 photoflood lamps mounted in ordinary coffee cans that functioned as combination reflectors and snoots to concentrate the light. Photoflood bulbs were used in preference to standard studio lamps because they have no after glow and can be made to flash on and off instantaneously.

Background process plates were shot of a one-third scale miniature model of the corridor, which measured approximately four feet square and forty feet long, and had a false perspective painting at the end to indicate infinite distance. A stationery shot was made of the corridor for rear projection so that the actress illuminated by the flashing lights could run on a treadmill before it. Another scene was then shot with the camera moving swiftly through the corridor on a dolly, and the camera undercranked at 6 frames per second to greatly exaggerate the speed. In the resultant process shot, the girl remains stationary as the corridor appears to streak past her. The coffee can lights, moving on an endless track above her, whirled past to further the illusion.

The hallucination sequence is frankly stylized—but it is not this element that gives the modern "Caligari" its visual force. Rather, it is the overall concept of subtle but ever-mounting suspense achieved through a precise balance of action, art direction and photography. Forty-three years ago, the original "Caligari" attempted to introduce fresh new elements into the art of the cinema. The new version, exciting in its concept and dramatic interpretation, will not suffer by comparison—for it is a work of art in its own right. ■

PIXILLATION—A NEW TECHNIQUE

Continued from Page 413

Far smoother results were obtained by letting the animation motor run and establishing a rhythm for position changes. When running continuously, the animation motor on our Maurer camera made a 1/10th of a second exposure about once every second. By anticipating the opening of the shutter and allowing for the actor's reaction time, we were able to call a cadence. The great advantage of this method is the slight blur registered on the film as the subject moves. Standard speed exposures of similar action would be blurred slightly, in fact it is this blur that helps create the illusion of smooth motion. When more time is needed between action increments, an intervalometer is introduced into the electrical system to fire the camera at greater intervals.

We also learned that what takes so long to photograph in the studio speeds by all too quickly on the screen. For that reason, it is wise, in planning a pixillation sequence, to sandwich in running camera scenes whenever possible. Thus, while our long shot showed our protagonist from head to toe performing some remarkable acrobatics, this scene was followed by a waist-up running camera shot made as our hero was towed toward the camera on a small dolly. Such shots, however, require a reserve of additional lighting capacity to approximate the same f/ stop.

The most important lesson is an old one. Simply stated, the technique must be appropriate to the story . . . and the story must be appropriate to the technique. In our film pixillation was used for a reverie sequence in which a garage mechanic imagined a beautiful girl in a car had pulled into his service station. His spectacular actions are related directly to his desire to capture her attention and make a sale. The accompanying sequence of photos depict some of this action. The subject's initial position is beside the car. Successive single-frame exposures were made as the man shuffles toward rear of the car. On the screen, he appears to slide back to rear of car without moving his feet. At rear of car, as depicted in photo No. 2, the man assumes one of several positions needed to get him from upright position to flat on his back. In his hands are tools necessary for removing the car's defective muffler. Now on the floor, the man slides under the car with no visible means of locomotion. Actually he

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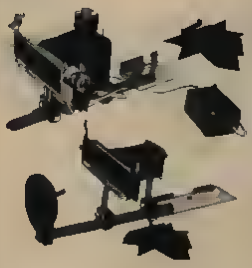

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inched his way along as the camera recorded the action in single-frame exposures. In the same manner, and in a matter of seconds, the man reappears with the car's old muffler.

Pixillation out of context, as merely a photographic stunt or a gimmick, is a waste and a crime. Pixillation when used in harmony with the character, the situation and the story, is sheer magic. •

Bibliography. Quarterly Bulletin #3 (1952) National Film Board of Canada *Some Notes on Stop Motion Live-Actor Technique — McLaren*

Acknowledgement. The author is indebted to Mr. McLaren for information and comments on the films and to the National Film Board of Canada for stills of the shooting of "Neighbours."

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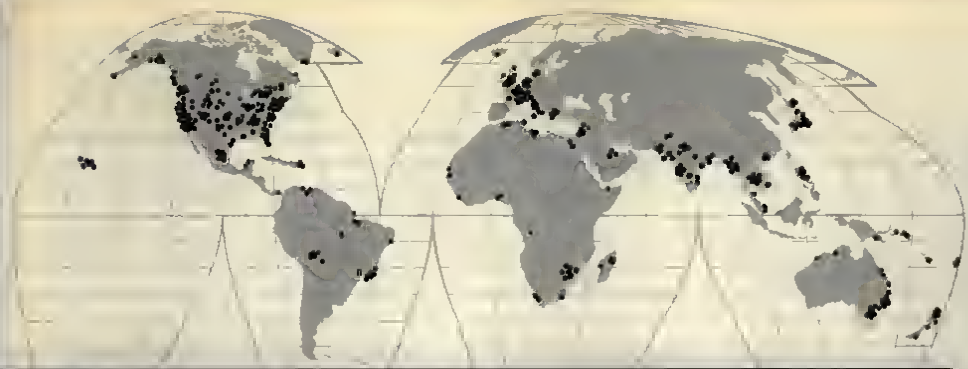

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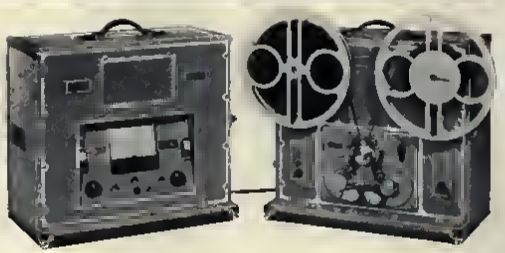

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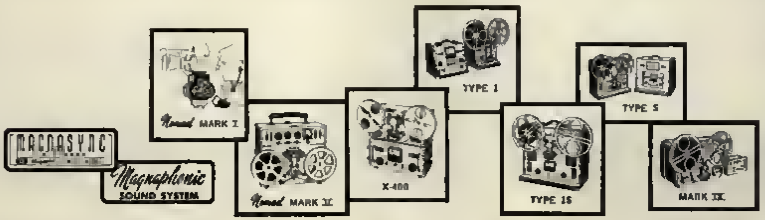

Authorized Dealers

CHICAGO, ILL
Behrend Cine Corp
161 E. Grand, MI 2 2281
Zenith Cinema Service, Inc
3252 Foster, IR 8 2104
DAYTON, OHIO
Salem Camera Co.
335 Salem, BA 3 7206
DENVER, COL.
Western Cine Service, Inc
312 S. Pearl, SH 4-1017
MIAMI, FLA.
Camera Equipment Co., Inc
1335 E. 10th, TU 8-4064
HOLLYWOOD, CALIF
Birns & Sawyer Cine Equipment
6424 Santa Monica, HO 4-5166
Camera Equipment Co., Inc
651D Santa Monica, HO 9-5119
S.O.S. Photo-Cine-Optics, Inc
6331 Hollywood, NO 7-9202
KANSAS CITY, MO.
Barnard's, 4724 Broadway
Country Club Plaza, LO 1-7781
Crick's Camera Shop
6320 Brookside Plaza, HI 4-3390
MINNEAPOLIS, MINN
Century Camera Shops, Inc
26 S. 7th, FE 8-5257
NEW YORK CITY
Camera Equipment Co., Inc
315 W. 43rd, JU 6-1420
Fleiman & Babb, Inc.
66 W. 45th, MU 2 2928
Pictronics Corporation
236 E. 46th, YU 8 3713
S.O.S. Photo-Cine-Optics, Inc
602 W. 52nd, PL 7 0440
PHOENIX, ARIZ.
Wilson Camera Sales Co.
130 W. Adams, AL 4-0682
ST. LOUIS, MO.
Stanley Photo Service
106 N. Broadway, CE 1-7840
SAN FRANCISCO, CALIF
Brooks Cameras, Inc
45 Kearny, EX 2 1902
SAN MATEO, CALIF
Foreman's
121 Fourth Ave., OI 3-1888

SOUTH AFRICA
Photo Agencies Pty. Ltd.
9 Kerk St., Johannesburg
ARGENTINA, Buenos Aires
Estudios Ion S.R.L.
Diaz Velez, 3891
AUSTRALIA, Sydney
Sixteen Millimetre
Australia Pty. Ltd.
49 Market, New South Wales
BOLIVIA, La Paz
Casa Kavlin
Casilla 500, Calle Potosi 281-283
BRAZIL, Rio de Janeiro
Mesbla, S.A.
Rua do Passeio 42/56
BURMA, Rangoon
G.K. Theatre Supply Co., Ltd.
57 Lewis Street
CANADA, Islington, Ontario
Alex L. Clark, Ltd.
3751 Bloor St. W.
DENMARK, Copenhagen CHL
Kinovex Electric Corp.
Jernbanevej 2
ENGLAND, London
Delane Lee Processes, Ltd.
12 Mear St., (W.1)
Gordon Cameras, Ltd.
45 Kensington High, (W-8)
FRANCE, Paris
Brackliss Simplex S.A.
8 Rue Guillaume Tell
GERMANY, Hilden Dusseldorf
Gerhard Johansan
3 Lessingstrasse
GREECE, Athens
Christos Axarlis
50 Stadium St.
INDIA, Bombay
Kine Engineers
26 New Queen's Road
ITALY, Rome
Reportfilm di J.M. Schuller
Via Antonio Bertolini 31
JAPAN, Tokyo
J. Osawa & Co., Ltd.
5, Ginza, Nishi 2-Chrome, Chuo ku
NEW ZEALAND, Auckland
Rawridge Odeon Industries
St. James Building, Queen St.
PAKISTAN, Karachi 3
Film Factors, Ltd.
27 Victoria Rd., Rex Annexe
SOUTH RHODESIA, Salisbury
William Over & Co. Pvt. Ltd.
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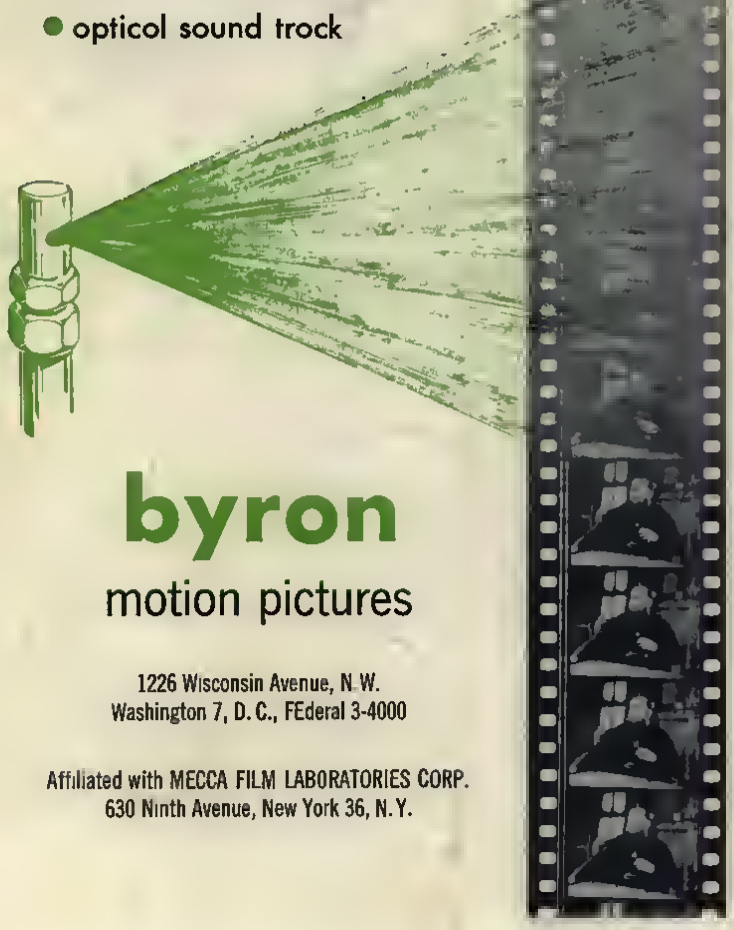

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